

# SERVICE MANUAL



# FISHER

FM STEREO/MW/LW  
RECEIVER WITH RRS-9020  
WIRELESS REMOTE CONTROL

## RS-1902

132 351 42

This service manual is prepared for Model RS-1902. As only the components in the chart below differ, refer to the service manual RS-9020 (WM-570447) for other components.

Ref.No.	RS-9020	RS-1902	Description	Q'ty
	<b>PACKAGE</b> 620 202 1935	620 205 2809	Outer Carton	1
	<b>ACCESSORIES</b> 620 202 3236 620 202 3250	620 205 2601 620 205 2588	Assy, Poly Cover Instruction Manual	1 1
8 11	<b>CABINET</b> 620 202 1898 620 202 1744	620 205 2786 620 205 2755	Assy, Cabinet Panel, Rear	1 1

Add this sheet Model RS-9020 Service Manual (WM-570447).



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Printed in Japan

**REFERENCE No. WM-570399**

# SERVICE MANUAL



# FISHER

FM STEREO/MW/LW  
RECEIVER WITH WIRELESS  
REMOTE CONTROL RRS-9020

## RS-9020

(EUROPE)



132 351 40

## SPECIFICATIONS

### POWER AMPLIFIER SECTION

Minimum RMS sine wave power per channel within stated bandwidth at no more than stated  
Distortion and with 8Ω load ..... 55W (DIN)  
Total Harmonic Distortion ..... 0.09%  
I.M. Distortion ..... 0.2%  
Speaker Damping ..... > 20

### PREAMPLIFIER SECTION

Frequency Response  
Phono (RIAA) ..... ±2dB  
AUX (20Hz ~ 20kHz) ..... +0, -2dB  
Input Sensitivity and Impedance  
Phono ..... 2.5mV/50kΩ  
Tape Monitor 1,2 ..... 150mV/50kΩ  
AUX/VIDEO/CD ..... 150mV/50kΩ  
Phono Max. Input Capability ..... 150mV  
Multi Tone Control  
Super Bass ..... 63Hz ±10dB  
Bass ..... 250Hz ±10dB  
Middle ..... 1kHz ±10dB  
Treble ..... 4kHz ±10dB  
Super Treble ..... 16kHz ±10dB  
Loudness Contour (100Hz/10kHz) ..... +8dB/+4dB

### Hum and Noise (IHF Short Circuit, A Network)

Phono ..... 70dB  
Tape Monitor 1,2 ..... 90dB  
AUX/VIDEO/CD ..... 90dB  
Source Direct (AUX) ..... 90dB

### FM SECTION

Usable Sensitivity  
Mono ..... 1.0μV  
46dB Quieting Sensitivity  
Mono ..... 4.0μV  
Signal-to-Noise Ratio  
Mono ..... 67dB  
Stereo ..... 63dB  
Capture Ratio ..... 2.0dB  
Alt. Channel Selectivity(±300kHz) ..... 55dB  
Image Response Ratio ..... 100dB  
Spurious Response Ratio ..... 95dB  
IF Response Ratio ..... > 90dB  
AM Suppression Ratio ..... 55dB  
Total Harmonic Distortion at 60dBf  
Mono (1kHz) ..... 0.1%  
Stereo (1kHz) ..... 0.2%  
Stereo Separation  
(100Hz/1kHz/10kHz) ..... 40/40/30dB

— Specifications and design are subject to change without notice. —

REFERENCE No. WM-570447

## SPECIFICATIONS (Continued)

Sub-Carrier Rejection (19kHz/38kHz) ..... 30/50dB  
 Audio Frequency Response  
 (20Hz ~ 15kHz) .....  $\pm 3.0$ dB

### MW SECTION

Usable Sensitivity ..... 600 $\mu$ V/m  
 Selectivity ..... 35dB  
 Signal-to-Noise Ratio ..... 55dB  
 Image Response Ratio ..... 38dB  
 IF Response Ratio ..... 60dB

### LW SECTION

Usable Sensitivity ..... 2000 $\mu$ V/m  
 Selectivity ( $\pm 9$ kHz) ..... 40dB  
 Signal-to-Noise Ratio ..... 50dB  
 Image Response Ratio ..... 45dB  
 IF Response Ratio ..... 65dB

### GENERAL

Power Requirements ..... AC 220V  
 (50Hz) ..... 300 Watts  
 AC Outlet (Switched) ..... 2  
 Dimensions (WxHxD) ..... 440 x 113.5 x 271 mm  
 Weight (approximate) ..... 6.7 kg

— Specifications and design are subject to change without notice. —

## POWER AMPLIFIER ADJUSTMENT

### BEFORE ADJUSTMENT

Unplug the AC power cord and set the front panel controls as follows:

- Power Switch to OFF position.
- Set the SPEAKERS Switch to the OFF position.
- Turn the MASTER VOLUME Control to minimum.
- IDLING CURRENT ADJUSTMENT VR401/VR402 (on the Main/Tuner P.C.Board) setting to mechanical center position.
- Connect the AC power cord and Power Switch to the ON position.

### IDLING CURRENT ADJUSTMENT

This adjustment is very sensitive to changes in ambient temperature. Allow set to operate for 2 minutes before attempting this alignment.

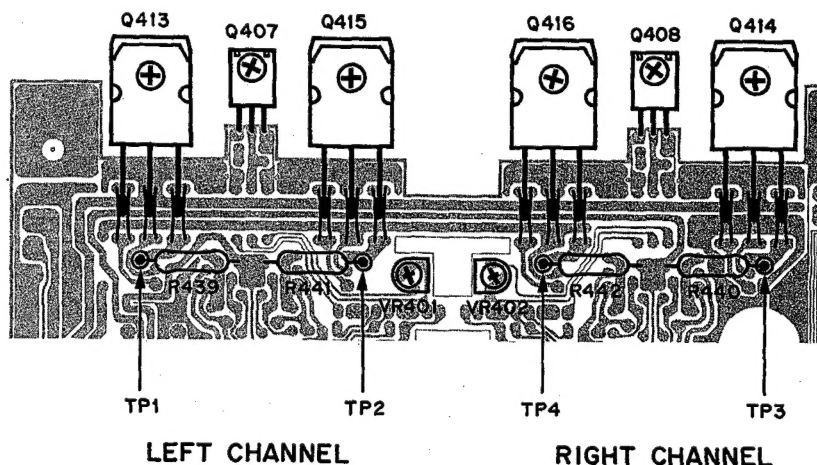
### LEFT AMPLIFIER

1. Connect the DC Voltmeter between Pins TP1 and TP2 on the Main/Tuner P.C.Board.
2. Adjust the VR401 for an indication of 10mV  $\pm 2$ mV on the DC Voltmeter.

### RIGHT AMPLIFIER

1. Connect the DC Voltmeter between Pins TP3 and TP4 on the Main/Tuner P.C.Board.
2. Adjust the VR402 for an indication of 10mV  $\pm 2$ mV on the DC Voltmeter.

## ADJUSTMENT POINTS



## CAUTION ON RF ADJUSTMENT

This model uses a microprocessor for memory preset control for the various bands.

This function has been used to preset frequency points for the different bands to permit adjustment and make it possible to check the function of the microprocessor. To use this supplemental function, Press and hold down the TUNER Function button for approximately 5 seconds so that the frequency points show in the following table before beginning adjustment. The following table shows the initially preset frequencies.

Band	Memory					
	1	2	3	4	5	6
FM-1	87.5MHz	108MHz	88MHz	98MHz	100Hz	96MHz
MW/LW	603kHz	1404kHz	999kHz	160kHz	350kHz	250kHz

## FM TUNER ALIGNMENT

**FM ALIGNMENT** — Band Selector switch to FM/ST(MUTE) position.

Note is almost unnecessary to adjust coil in Front End as perfectly adjusted.

ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
1. FM IF S-CURVE ALIGNMENT	Connect 10.7MHz Radio IF Genescope output to Front End 8pin (TP9) and ground lead to chassis. Use 5pF capacitor in series with generator output lead.	Position of non-interference Minimum Frequency.	Connect Radio IF Genescope input to TP7 and ground lead to chassis.	Adjust FM DET 1 Coil (L307) and FM DET 2 (L308) so that S-wave from becomes symmetrical.
2. DETECTOR ADJUSTMENT (MINIMUM T.H.D.)	Connect FM RF signal generator through FM Dummy Antenna to FM Antenna terminals. Set generator to 98MHz $\pm 2$ kHz. Modulate with 1kHz to provide $\pm 40$ kHz deviation. Setting generator with attenuator output level for 60dB $\mu$ V.	Set MODE switch to FM MONO position and Preset STATION button to "4" posion. Set to 98MHz.	Connect DC Voltmeter across TP2 and TP4.	Adjust FM DET 1 Coil (L307) until DC Voltmeter reads 0V $\pm 50$ mV.
			Connect Harmonic Distortion Analyzer to REC OUT.	Adjust FM DET 2 Coil (L308) for minimum gain and best linearity.
<b>Note:</b> Repeat Step 1 (FM DET 1 Coil L307) and 2 (FM DET 2 Coil L308) until optimum alignment is reached.				
3. FM STEREO SIGNAL SEPARATION CONTROL	Connect FM Stereo SG to FM Antenna terminals. 19kHz signal ON. Main channel, sub channel signal ON. Apply 1000Hz signal from LEFT channel.	Same as above. Set Mode switch to ST(MUTE) position.	Connect AC VTVM and Oscilloscope to REC OUT.	Adjust VR303 for minimum output.
	Same as above for RIGHT channel.		Connect AC VTVM and Oscilloscope to REC OUT.	
4. FM MUTING AUTO STOP SENSITIVITY ADJUSTMENT	Set generator to 98MHz. Adjust attenuator output level to 10dB $\mu$ V.	Same as above.	Front panel TUNED Indicator Display.	Set Mode Switch to ST(MUTE). Adjust VR302 until the TUNED Indicator partly light up.
<b>Note:</b> Decrease the output level of ATT and confirm that the wave form disappears. Increase the output level of ATT again and confirm that the input level meets the specifications sufficiently when the wave form has appeared.				

Use a screwdriver with plastic grip for all adjustments.

### MW Frequency Cover Range Tuning Voltage Value at TP 1

(Table 1)

	522kHz	1611kHz
Minimum	0.8V	7.0V
Typical	1.0V	7.6V
Maximum	1.3V	9.0V

### LW Frequency Cover Range Tuning Voltage Value at TP 1

(Table 2)

	153kHz	360kHz
Minimum	1.0V	7.0V
Typical	1.2V	7.5V
Maximum	1.5V	9.0V



## AM TUNER ALIGNMENT

**AM ALIGNMENT** – Band Selector switch to MW or LW position.  
Maintain generator output as low as possible for suitable indication.

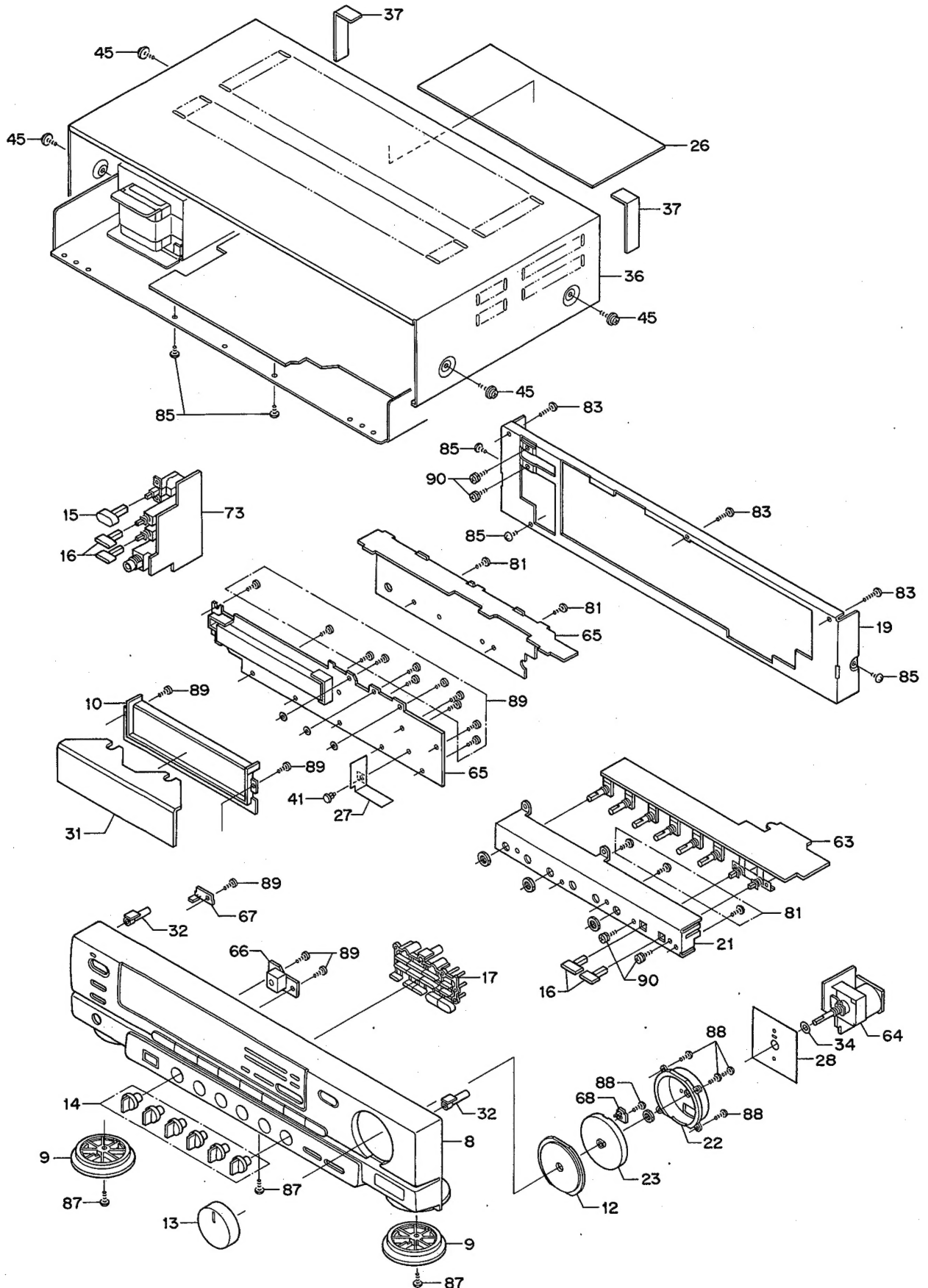
**Note:** Perform this alignment after FM Tuner Alignment.

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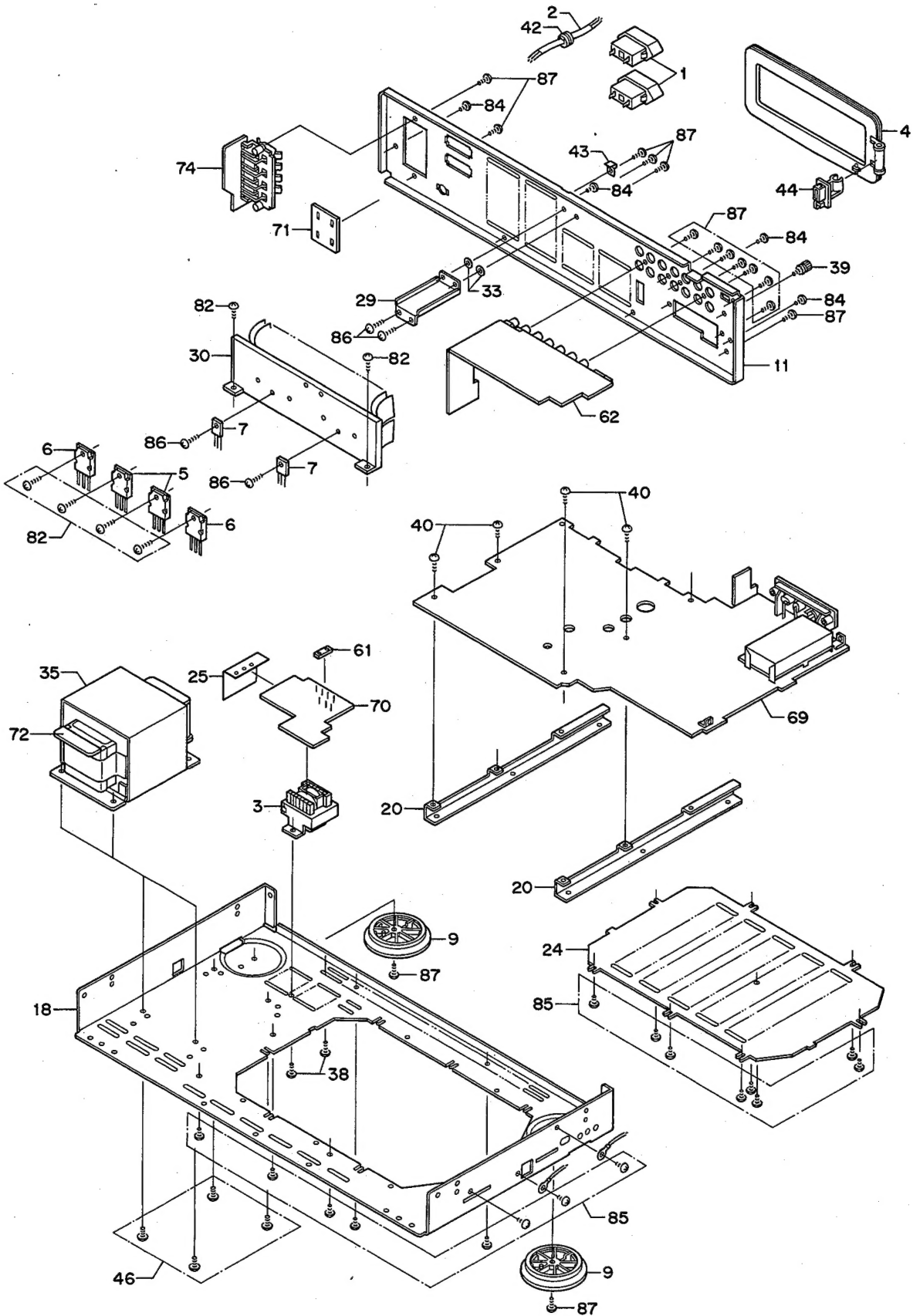
ITEM	GENERATOR	DIAL SETTING	INDICATOR	PROCEDURE
1. AM IF ALIGNMENT	Connect 450kHz Radio IF Genescope output to AM antenna terminal. Adjust output level to 100dB $\mu$ V.	Position of non-interference Minimum Frequency.	Connect Radio IF Genescope input to TP6 and ground lead to chassis.	Adjust AM IFT (L306) for maximum gain and best symmetry. Keep signal low enough for noise on response
2. MW RF FREQUENCY COVER ALIGNMENT (1611kHz)	Do not connect generator.	Front Panel DIGITAL Counter Display Set to 1611kHz.	Connect DC Voltmeter to TP1 and ground lead to chassis.	Check DC Voltmeter for Indication 7.0V ~ 9.0V.
3. (522kHz)	Same as above.	DIGITAL Counter Display Set to 522kHz.	Same as above.	Check DC Voltmeter for Indication 0.8V ~ 1.3V.
<b>Note:</b> Repeat the adjustments in items 2 and 3. Then, confirm that each voltage becomes 1.0V to 7.6V at receiving frequency of 522kHz to 1611kHz. (See Table 1)				
4. LW RF FREQUENCY COVER ALIGNMENT (360kHz)	Do not connect generator.	Front Panel DIGITAL Counter Display Set to 360kHz.	Connect DC Voltmeter to TP1 and ground lead to chassis.	Check DC Voltmeter for Indication 7.0V ~ 9.0V.
5. (153kHz)	Same as above.	DIGITAL Counter Display Set to 153kHz.	Same as above.	Check DC Voltmeter for Indication 1.0V ~ 1.5V.
<b>Note:</b> Repeat the adjustments in Items 4 and 5. Then, confirm that each voltage becomes 1.2V to 7.5V at receiving frequency of 153kHz to 360kHz. (See Table 2)				
6. MW RF TRACKING ALIGNMENT (603kHz)	Connect Standard Loop Antenna to output terminal of AM RF Signal Generator. Place Loop Antenna 60cm away from Loop antenna (Unit). Generator Setting to 603kHz or 1404kHz. Modulate with 1000Hz (30 % modulation).	Set Preset STATION button to "1" position. Set to 603kHz.	Connect AC VTVM and Oscilloscope to REC OUT.	Adjust MW ANT Coil (L302) for maximum gain output.
7. (1404kHz)		Change Preset STATION button to "2" position. Set to 1404kHz.	Same as above.	Adjust MW ANT Trimmer (TC301) for maximum gain output.
<b>Note:</b> Repeat the adjustments in Items 6 and 7. Then, confirm there is no tracking error.				
8. LW RF TRACKING ALIGNMENT (160kHz)	Change generator setting to 160kHz.	Set Preset STATION button to "4" position. Set to 160kHz.	Connect AC VTVM and Oscilloscope to REC OUT.	Adjust LW ANT Coil (L303) for maximum gain output.
9. (350kHz)	Change generator setting to 350kHz.	Change Preset STATION button to "5" position. Set to 350kHz.	Same as above.	Adjust LW ANT Trimmer (TC302) for maximum gain output.
<b>Note:</b> Repeat the adjustments in Items 8 and 9. Then, confirm there is no tracking error.				
10. AM AUTO STOP SENSITIVITY ADJUSTMENT	Change generator setting to 999kHz and output level to 60dB $\mu$ V/m.	Set Preset STATION button to "3" position. Set to 999kHz.	Front Panel TUNED Indicator Display.	Adjust VR301 until the Indicator partly light up.

Use a screwdriver with plastic grip for all adjustments.

# CABINET & CHASSIS EXPLODED VIEW (1)



## CABINET & CHASSIS EXPLODED VIEW (2)



## CABINET & CHASSIS PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
<b>PACKAGE</b>				67	620 202 1546	Assy,PCB,Standby,LED	1
	620 198 1568	Pad,Bottom	1	68	620 202 1553	Assy,PCB,Volume,LED	1
	620 198 1575	Pad,Top	1	69	620 202 1560	Assy,PCB,Main/Tuner	1
	620 204 1858	Pad,Side	2	70	620 202 1577	Assy,PCB,Sub,Trans	1
	620 059 6596	Patching Sheet	1	71	620 202 1584	Assy,PCB,AC,Outlet	1
	620 148 5639	Poly Cover 100 x 190	1	72	620 202 1591	Assy,PCB,Main,Trans	1
	620 148 8012	Sheet Polyethylene	1	73	620 202 1607	Assy,PCB,Power Switch	1
	620 152 7452	Serial No. Sheet	2	74	620 202 1614	Assy,PCB,Speaker,Terminal	1
<b>ACCESSORIES</b>				81	411 020 5706	SCR S-TPG BRZ 2.6X8	5
	620 202 3236	Assy,Poly Cover	1	82	411 020 5904	SCR S-TPG BRZ 3X10	6
	620 202 3250	Instruction Manual	1	83	411 020 7304	SCR S-TPG BRZ 3X30	3
	620 038 1673	FM Antenna Assy	1	84	411 020 7601	SCR S-TPG BRZ 3X5	4
	620 057 8783	Bag Fan	1	85	411 020 7700	SCR S-TPG BRZ 3X6	21
	620 062 0543	Serial No. Sheet	1	86	411 020 8004	SCR S-TPG BRZ 3X8	4
	620 112 8123	Holder Antenna	1	87	411 099 9803	SCR S-TPG BRZ 3X8	18
	620 152 2624	Certificate Card	1	88	411 021 0809	SCR S-TPG BIN 2X6	5
	620 202 3243	Remocon,RRS-9020	1	89	411 021 1202	SCR S-TPG BIN 2X8	16
				90	411 003 8908	SCR PAN + SW 3X6	4
<b>CABINET</b>				<b>NOTES:</b>			
	620 125 8424	Wire Band	13	1.	Parts order must contain Model Number, Part Number and Description.		
	620 152 7452	Serial No. Sheet	1	2.	Ordering quantity of screws and resistors must be multiple of 10 pcs.		
1	△ 620 017 1212	AC Socket	2	<b>PRODUCT SAFETY NOTICE</b>			
2	△ 620 023 7550	Power Cord	1				
3	△ 620 182 9778	Power Trans	1	Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol △ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with △, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.			
4	620 028 2741	AM Loop Antenna	1				
or	620 028 2734	AM Loop Antenna	1				
5	405 080 7602	TR 2SA1264N-O [Q415]	1				
5	405 080 7602	TR 2SA1264N-O [Q416]	1				
6	405 080 7800	TR 2SC3181N-O [Q413]	1				
6	405 080 7800	TR 2SC3181N-O [Q414]	1				
7	405 022 8001	TR 2SD1682-S [Q407]	1				
7	405 022 8001	TR 2SD1682-S [Q408]	1				
8	620 202 1898	Assy,Cabinet	1				
9	620 198 6969	Assy,Foot	4				
10	620 202 2277	Assy,Mount-M,Filter	1				
11	620 202 1744	Panel,Rear	1				
12	620 198 4835	Window,Volume	1				
13	620 198 4859	Knob,Rotary,Volume	1				
14	620 202 1805	Knob,Rotary	6				
15	620 198 6938	Knob,Power	1				
16	620 198 0752	Button,Push	4				
17	620 201 4562	Button,Tuner	1				
18	620 198 0929	Chassis	1				
19	620 202 1737	Chassis,Front	1				
20	620 202 1768	Bracket-E,PCB,Main	2				
21	620 202 1782	Bracket-E,PCB,Volume	1				
22	620 198 4828	Mount-E,Volume	1				
23	620 198 4842	Mount-E,Indicator	1				
24	620 198 0936	Plate,Bottom	1				
25	620 203 2214	Plate,Sever	1				
26	620 203 4843	Plate,Sever	1				
27	620 204 0240	Plate,Sever	1				
28	620 203 4850	Shield,Plate	1				
29	620 204 0561	Reinforcement	1				
30	620 202 4219	Heat Sink	1				
31	620 202 1829	Filter,Edge Light	1				
32	620 198 0912	Spacer,Cabinet	2				
33	620 204 3524	Spacer	2				
34	620 204 3548	Spacer	1				
35	△ 620 201 8638	Power Trans,SEV,130VA	1				
36	620 045 6913	Cover	1				
37	620 048 4541	Metal Reinforce	2				
38	620 051 1735	Screw 3.0X8 Z	2				
39	620 051 2152	Screw Ground	1				
40	620 051 3692	SCR TPG BRZ + M3.0X6	4				
41	620 191 2746	Rivet 3.5	1				
42	620 053 2136	Bushing (MP4N-4)	1				
43	620 117 2447	Bracket Cover	1				
44	620 122 2210	Holder Antenna	1				
45	620 123 0284	SCR TPG BIN + M4.0X8	4				
46	620 123 0833	SCR Bind TAP-B + M4X10	4				
61	620 202 1904	PCB,Voltage,Select	1				
62	620 204 8857	Assy,PCB,Input	1				
63	620 202 1485	Assy,PCB,Graphic EQ.	1				
64	620 202 1492	Assy,PCB,Main,Volume	1				
65	620 204 8871	Assy,PCB,μ-CON	1				
66	620 202 1539	Assy,PCB,Remote Control	1				

# P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
<b>ASSY,PCB,INPUT</b>							
62	620 204 8857	Assy,PCB,Input	1	R125	401 024 7004	CARBON 1K JA 1/6W	1
	620 202 1690	PCB,Phono,Shield	1	R126	401 024 7004	CARBON 1K JA 1/6W	1
	620 202 1706	PCB,Input,Connect	1	R127	401 024 7004	CARBON 1K JA 1/6W	1
	620 188 9918	Pin Jack 2P Black	1	R128	401 024 7004	CARBON 1K JA 1/6W	1
	620 188 9932	Pin Jack 6P Black	2	R129	401 024 7400	CARBON 10K JA 1/6W	1
	620 050 2450	Metal Mount Antenna	1	R131	401 012 5708	CARBON 1K JA 1/4W	1
CN101	620 021 6555	Plug 4P	1	R133	401 016 2604	CARBON 220 JA 1/4W	1
CN103	620 200 5782	Connector-P,TFC-B08Y-E1	1	R134	401 016 2604	CARBON 220 JA 1/4W	1
CN104	620 200 5782	Connector-P,TFC-B08Y-E1	1	R199	401 016 3809	CARBON 2.2K JA 1/4W	1
CN105	620 203 4713	Connector-S,5513-NA,14P	1	<b>ASSY,PCB,GRAPHIC EQ.</b>			
IC101	409 057 4403	IC UPC4570C	1	63	620 202 1485	Assy,PCB,Graphic EQ.	1
IC102	409 109 5105	IC LC7821	1	CN106	620 202 3328	Connector-S,5244,8P	1
Q117	405 037 0601	TR 2SC3899-AC	1	CN107	620 202 3007	Connector-P,53095,5P	1
D101	407 005 3805	DIODE DS442-BT	1	CN108	620 202 2994	Connector-P,53095,10P	1
D104	407 012 4208	DIODE 1SS131-T-77	1	SW101	620 201 4302	Switch,Push,2S	1
or	407 008 0405	DIODE GMB01-BT	1	VR101	620 202 3397	VR,Rotary,2X250KSW	1
C101	403 071 6207	CERAMIC 220P K 50V	1	VR102	620 202 3397	VR,Rotary,2X250KSW	1
C102	403 071 6207	CERAMIC 220P K 50V	1	VR103	620 202 3397	VR,Rotary,2X250KSW	1
C103	403 071 6207	CERAMIC 220P K 50V	1	VR104	620 202 3397	VR,Rotary,2X250KSW	1
C104	403 071 6207	CERAMIC 220P K 50V	1	VR105	620 202 3397	VR,Rotary,2X250KSW	1
C105	403 051 2106	ELECT 4.7U M 50V	1	VR106	620 202 3403	VR,Rotary,1X200KW	1
C106	403 051 2106	ELECT 4.7U M 50V	1	IC103	409 166 5308	IC TC9215P	1
C107	403 071 6207	CERAMIC 220P K 50V	1	IC104	409 070 7108	IC RC4558	1
C108	403 071 6207	CERAMIC 220P K 50V	1	Q101	405 057 6409	TR 2SC4038-R-TL2	1
C109	403 038 2402	ELECT 100U M 6.3V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C110	403 038 2402	ELECT 100U M 6.3V	1	Q102	405 057 6409	TR 2SC4038-R-TL2	1
C111	403 059 0401	POLYESTER 0.018U K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C112	403 059 0401	POLYESTER 0.018U K 50V	1	Q107	405 096 0406	TR 2SC2021LN-R	1
C113	403 061 8709	POLYESTER 4700P K 50V	1	or	405 096 0505	TR 2SC2021LN-S	1
C114	403 061 8709	POLYESTER 4700P K 50V	1	Q108	405 096 0406	TR 2SC2021LN-R	1
C115	403 051 2106	ELECT 4.7U M 50V	1	or	405 096 0505	TR 2SC2021LN-S	1
C116	403 051 2106	ELECT 4.7U M 50V	1	Q109	405 096 0406	TR 2SC2021LN-R	1
C117	403 071 6207	CERAMIC 220P K 50V	1	or	405 096 0505	TR 2SC2021LN-S	1
C118	403 071 6207	CERAMIC 220P K 50V	1	Q110	405 096 0406	TR 2SC2021LN-R	1
C119	403 121 9509	CERAMIC 0.1U Z 50V	1	or	405 096 0505	TR 2SC2021LN-S	1
C120	403 121 9509	CERAMIC 0.1U Z 50V	1	Q111	405 057 6409	TR 2SC4038-R-TL2	1
C121	403 071 6207	CERAMIC 220P K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C122	403 071 6207	CERAMIC 220P K 50V	1	Q112	405 057 6409	TR 2SC4038-R-TL2	1
C125	403 071 6207	CERAMIC 220P K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C126	403 071 6207	CERAMIC 220P K 50V	1	Q113	405 057 6409	TR 2SC4038-R-TL2	1
C129	403 071 6207	CERAMIC 220P K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C130	403 071 6207	CERAMIC 220P K 50V	1	Q114	405 057 6409	TR 2SC4038-R-TL2	1
C133	403 071 6207	CERAMIC 220P K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C134	403 071 6207	CERAMIC 220P K 50V	1	Q115	405 057 6409	TR 2SC4038-R-TL2	1
C137	403 071 6207	CERAMIC 220P K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C138	403 071 6207	CERAMIC 220P K 50V	1	Q116	405 057 6409	TR 2SC4038-R-TL2	1
C141	403 071 6207	CERAMIC 220P K 50V	1	or	405 057 6300	TR 2SC4038-S-TL2	1
C142	403 071 6207	CERAMIC 220P K 50V	1	C151	403 049 5508	ELECT 10U M 50V	1
C145	403 047 4305	ELECT 47U M 25V	1	C152	403 049 5508	ELECT 10U M 50V	1
C146	403 047 4305	ELECT 47U M 25V	1	C153	403 068 9402	CERAMIC 100P K 50V	1
C147	403 049 1708	ELECT 1U M 50V	1	C154	403 068 9402	CERAMIC 100P K 50V	1
C148	403 003 3700	CERAMIC 0.022U Z 25V	1	C155	403 068 9402	CERAMIC 100P K 50V	1
C149	403 003 3700	CERAMIC 0.022U Z 25V	1	C156	403 068 9402	CERAMIC 100P K 50V	1
R100	401 024 7004	CARBON 1K JA 1/6W	1	C157	403 096 8606	ELECT 1.5U K 50V	1
R101	401 025 7805	CARBON 2.2K JA 1/6W	1	C158	403 096 8606	ELECT 1.5U K 50V	1
R102	401 025 7805	CARBON 2.2K JA 1/6W	1	C159	403 048 7701	ELECT 0.47U M 50V	1
R103	401 024 7707	CARBON 100K JA 1/6W	1	C160	403 048 7701	ELECT 0.47U M 50V	1
R104	401 024 7707	CARBON 100K JA 1/6W	1	C161	403 063 8103	POLYESTER 0.082U K 50V	1
R105	401 024 7707	CARBON 100K JA 1/6W	1	C162	403 063 8103	POLYESTER 0.082U K 50V	1
R106	401 024 7707	CARBON 100K JA 1/6W	1	C163	403 001 5805	CERAMIC 0.022U N 16V	1
R107	401 026 0607	CARBON 270 JA 1/6W	1	C164	403 001 5805	CERAMIC 0.022U N 16V	1
R108	401 026 0607	CARBON 270 JA 1/6W	1	C165	403 004 2207	CERAMIC 5600P M 25V	1
R109	401 025 8703	CARBON 220K JA 1/6W	1	C166	403 001 8400	CERAMIC 5600P M 16V	1
R110	401 025 8703	CARBON 220K JA 1/6W	1	C167	403 003 3700	CERAMIC 0.022U Z 25V	1
R111	401 025 1902	CARBON 15K JA 1/6W	1	C168	403 003 3700	CERAMIC 0.022U Z 25V	1
R112	401 025 1902	CARBON 15K JA 1/6W	1	C169	403 001 1906	CERAMIC 0.01U M 16V	1
R113	401 024 7707	CARBON 100K JA 1/6W	1	C170	403 001 1906	CERAMIC 0.01U M 16V	1
R114	401 024 7707	CARBON 100K JA 1/6W	1	C171	403 001 7601	CERAMIC 4700P M 16V	1
R115	401 012 5708	CARBON 1K JA 1/4W	1	C172	403 001 7601	CERAMIC 4700P M 16V	1
R116	401 012 5708	CARBON 1K JA 1/4W	1	C173	403 001 4006	CERAMIC 1500P M 16V	1
R117	401 024 7004	CARBON 1K JA 1/6W	1	C174	403 001 4006	CERAMIC 1500P M 16V	1
R118	401 024 7004	CARBON 1K JA 1/6W	1	C175	403 074 9205	CERAMIC 680P K 50V	1
R119	401 024 7004	CARBON 1K JA 1/6W	1	C176	403 074 9403	CERAMIC 680P K 50V	1
R120	401 024 7004	CARBON 1K JA 1/6W	1	C177	403 050 3708	ELECT 22U M 50V	1
R121	401 024 7004	CARBON 1K JA 1/6W	1	C178	403 050 3708	ELECT 22U M 50V	1
R122	401 024 7004	CARBON 1K JA 1/6W	1	C179	403 071 6207	CERAMIC 220P K 50V	1
R123	401 024 7004	CARBON 1K JA 1/6W	1	C180	403 071 6207	CERAMIC 220P K 50V	1
R124	401 024 7004	CARBON 1K JA 1/6W	1	C181	403 143 2809	CERAMIC 0.047U Z 50V	1



## P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
C182	403 143 2809	CERAMIC 0.047U Z 50V	1		620 198 0875	Spacer	1
C183	403 044 0300	ELECT 47U M 16V	1		620 201 4920	Spacer,LED	1
C184	403 044 0300	ELECT 47U M 16V	1		620 198 5313	Fluorescent Tube,8BT-75GK	1
C185	403 121 9509	CERAMIC 0.1U Z 50V	1	CN201	620 202 3366	Connector-S,5224,9P	1
C186	403 121 9509	CERAMIC 0.1U Z 50V	1	CN202	620 202 3366	Connector-S,5224,9P	1
R137	401 024 7400	CARBON 10K JA 1/6W	1	CN203	620 202 3366	Connector-S,5224,9P	1
R138	401 024 7400	CARBON 10K JA 1/6W	1	CN204	620 200 1524	Connector-S,52084,5P	1
R139	401 025 0004	CARBON 120K JA 1/6W	1	CR201	620 202 2062	Resonator,Ceram,4.19MHz	1
R140	401 024 8001	CARBON 1M JA 1/6W	1	CR202	620 202 2062	Resonator,Ceram,4.19MHz	1
R141	401 012 5708	CARBON 1K JA 1/4W	1	JH201	620 201 0373	Socket,Holder,3P	1
R142	401 012 5708	CARBON 1K JA 1/4W	1	JH202	620 201 0144	Socket,Holder,2P	1
R143	401 024 7707	CARBON 100K JA 1/6W	1	JH203	620 201 0144	Socket,Holder,2P	1
R144	401 024 7707	CARBON 100K JA 1/6W	1	RA201	620 004 5674	Resistor 12X10K	1
R145	401 024 7707	CARBON 100K JA 1/6W	1	RA202	620 004 5551	Resistor 3X10K J	1
R146	401 024 7707	CARBON 100K JA 1/6W	1	RA203	620 004 5674	Resistor 12X10K	1
R147	401 026 7408	CARBON 39K JA 1/6W	1	RA204	620 004 5575	Resistor 4X100K J	1
R148	401 026 7408	CARBON 39K JA 1/6W	1	RA205	620 202 2055	Resistor,7X47K,P1.778	1
R149	401 027 2600	CARBON 5.6K JA 1/6W	1	RA206	620 202 2048	Resistor,9X47K,P2.54	1
R150	401 027 2600	CARBON 5.6K JA 1/6W	1	RA207	620 202 2031	Resistor,8X47K,P2.54	1
R151	401 027 2600	CARBON 5.6K JA 1/6W	1	SW201	620 202 2154	Switch,Tact (STATION 1)	1
R152	401 027 2600	CARBON 5.6K JA 1/6W	1	SW202	620 202 2154	Switch,Tact (STATION 2)	1
R153	401 027 5502	CARBON 6.8K JA 1/6W	1	SW203	620 202 2154	Switch,Tact (STATION 3)	1
R154	401 027 5502	CARBON 6.8K JA 1/6W	1	SW204	620 202 2154	Switch,Tact (STATION 4)	1
R155	401 024 7004	CARBON 1K JA 1/6W	1	SW205	620 202 2154	Switch,Tact (STATION 5)	1
R156	401 024 7004	CARBON 1K JA 1/6W	1	SW206	620 202 2154	Switch,Tact (STATION 6)	1
R157	401 025 1605	CARBON 1.5K JA 1/6W	1	SW207	620 202 2154	Switch,Tact (TUNING UP)	1
R158	401 025 1605	CARBON 1.5K JA 1/6W	1	SW208	620 202 2154	Switch,Tact (TUNING DOWN)	1
R159	401 025 1605	CARBON 1.5K JA 1/6W	1	SW209	620 202 2154	Switch,Tact (FM)	1
R160	401 025 1605	CARBON 1.5K JA 1/6W	1	SW210	620 202 2154	Switch,Tact (MW/LW)	1
R161	401 025 1605	CARBON 1.5K JA 1/6W	1	SW211	620 202 2154	Switch,Tact (AUTO/MANUAL)	1
R162	401 025 1605	CARBON 1.5K JA 1/6W	1	SW212	620 202 2154	Switch,Tact (STEREO/MONO)	1
R163	401 025 1605	CARBON 1.5K JA 1/6W	1	SW213	620 202 2154	Switch,Tact (SCAN LEVEL)	1
R164	401 025 1605	CARBON 1.5K JA 1/6W	1	SW214	620 202 2154	Switch,Tact (PHONO)	1
R165	401 025 1605	CARBON 1.5K JA 1/6W	1	SW215	620 202 2154	Switch,Tact (TUNER)	1
R166	401 014 4105	CARBON 1.5K JA 1/4W	1	SW216	620 202 2154	Switch,Tact (CD)	1
R167	401 025 0004	CARBON 120K JA 1/6W	1	SW217	620 202 2154	Switch,Tact (AUX)	1
R168	401 025 0004	CARBON 120K JA 1/6W	1	SW218	620 202 2154	Switch,Tact (TAPE-1)	1
R169	401 027 5908	CARBON 68K JA 1/6W	1	SW219	620 202 2154	Switch,Tact (TAPR-2)	1
R170	401 027 5908	CARBON 68K JA 1/6W	1	SW220	620 202 2154	Switch,Tact (S-DIRECT)	1
R171	401 027 0309	CARBON 47K JA 1/6W	1	IC201	409 162 2301	IC LC6522H-3794	1
R172	401 027 0309	CARBON 47K JA 1/6W	1	IC202	409 114 4803	IC LB1641	1
R173	401 026 7408	CARBON 39K JA 1/6W	1	IC203	410 060 9200	IC TMP47C441AN-1669Z	1
R174	401 026 7408	CARBON 39K JA 1/6W	1	Q201	405 035 6704	TR 2SA1511-AC	1
R175	401 025 4606	CARBON 18K JA 1/6W	1	Q202	405 037 0601	TR 2SC3899-AC	1
R176	401 025 4606	CARBON 18K JA 1/6W	1	Q203	405 018 2600	TR 2SC3400-AC	1
R177	401 026 6609	CARBON 390 JA 1/6W	1	Q204	405 037 0601	TR 2SC3899-AC	1
R178	401 026 6609	CARBON 390 JA 1/6W	1	Q205	405 036 3306	TR 2SA1522-AC	1
R179	401 026 6609	CARBON 390 JA 1/6W	1	Q206	405 018 2501	TR 2SC3399-AC	1
R180	401 026 6609	CARBON 390 JA 1/6W	1	Q207	405 037 0205	TR 2SC3860-AC	1
R181	401 026 6609	CARBON 390 JA 1/6W	1	Q208	405 004 4007	TR 2SA608-E-SPA-AC	1
R182	401 026 6609	CARBON 390 JA 1/6W	1	or	405 004 4601	TR 2SA608-F-SPA-AC	1
R183	401 026 6609	CARBON 390 JA 1/6W	1	Q209	405 018 2501	TR 2SC3399-AC	1
R184	401 026 6609	CARBON 390 JA 1/6W	1	Q210	405 019 2005	TR 2SC536-E-SPA-AC	1
R185	401 026 6609	CARBON 390 JA 1/6W	1	or	405 019 2807	TR 2SC536-F-SPA-AC	1
R186	401 026 6609	CARBON 390 JA 1/6W	1	Q211	405 019 2005	TR 2SC536-E-SPA-AC	1
R187	401 024 7400	CARBON 10K JA 1/6W	1	or	405 019 2807	TR 2SC536-F-SPA-AC	1
R188	401 024 7400	CARBON 10K JA 1/6W	1	Q214	405 084 7004	TR DTC144-EL-TP	1
R189	401 024 7400	CARBON 10K JA 1/6W	1	Q215	405 096 0000	TR DTA124-EL-TL2	1
R190	401 024 7400	CARBON 10K JA 1/6W	1	Q216	405 018 2600	TR 2SC3400-AC	1
R191	401 024 7400	CARBON 10K JA 1/6W	1	Q217	405 095 9806	TR DTC123-EL-TL2	1
R192	401 024 7400	CARBON 10K JA 1/6W	1	Q218	405 095 9806	TR DTC123-EL-TL2	1
R193	401 024 7400	CARBON 10K JA 1/6W	1	Q219	405 035 6704	TR 2SA1511-AC	1
R194	401 024 7400	CARBON 10K JA 1/6W	1	Q220	405 008 6809	TR 2SB808-F-SPA-AC	1
R195	401 024 7400	CARBON 10K JA 1/6W	1	or	405 008 7103	TR 2SB808-G-SPA-AC	1
R196	401 024 7400	CARBON 10K JA 1/6W	1	Q221	405 035 6704	TR 2SA1511-AC	1
R197	401 018 2604	CARBON 220 JA 1/4W	1	Q222	405 008 6809	TR 2SB808-F-SPA-AC	1
R198	401 018 2604	CARBON 220 JA 1/4W	1	or	405 008 7103	TR 2SB808-G-SPA-AC	1
				Q223	405 037 0601	TR 2SC3899-AC	1
				Q224	405 003 7603	TR 2SA1345-AC	1
<b>ASSY,PCB,MAIN,VOLUME</b>				D201	407 012 4208	DIODE 1SS131-T-77	1
64	620 202 1492	Assy,PCB,Main,Volume	1	or	407 008 0405	DIODE GMB01-BT	1
CN109	620 202 2987	Connector-S,52084,10P	1	D202	407 012 4208	DIODE 1SS131-T-77	1
VR107	620 201 8652	VR,Rotary,2X100KA,Motor	1	or	407 008 0405	DIODE GMB01-BT	1
<b>Assy,PCB,μ-CON</b>				D203	407 050 3607	ZENER DIODE GZA4.7X-BT	1
65	620 204 8871	Assy,PCB,μ-CON	1	or	407 050 3706	ZENER DIODE GZA4.7Y-BT	1
	620 030 8083	Lamp	3	D204	407 005 3805	DIODE DS442-BT	1
	411 021 0809	SCR S-TPG BIN 2X6	6	D205	407 005 3805	DIODE DS442-BT	1
	620 201 4937	Mount-E,FL,Left	1	D206	407 005 3805	DIODE DS442-BT	1
	620 201 4944	Mount-E,FL,Right	1	D207	407 012 4208	DIODE 1SS131-T-77	1



# P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
or	407 008 0405	DIODE GMB01-BT	1
D208	407 050 6103	ZENER DIODE GZA6.2X-BT	1
or	407 050 6202	ZENER DIODE GZA6.2Y-BT	1
D209	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D210	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D211	407 005 3805	DIODE DS442-BT	1
D212	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D213	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D217	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D219	407 005 3805	DIODE DS442-BT	1
D220	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D221	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D222	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D223	407 012 4208	DIODE 1SS131-T-77	1
or	407 008 0405	DIODE GMB01-BT	1
D224	407 106 5500	LED ULP-R73B-50 (PHONO)	1
D225	407 106 5500	LED ULP-R73B-50 (TUNER)	1
D226	407 106 5500	LED ULP-R73B-50 (CD)	1
D227	407 106 5500	LED ULP-R73B-50 (AUX)	1
D228	407 106 5500	LED ULP-R73B-50 (TAPE-1)	1
D229	407 106 5500	LED ULP-R73B-50 (TAPE-2)	1
D232	407 005 3805	DIODE DS442-BT	1
D233	407 005 3805	DIODE DS442-BT	1
D234	407 005 3805	DIODE DS442-BT	1
C201	403 051 2106	ELECT 4.7U M 50V	1
C202	403 038 2402	ELECT 100U M 6.3V	1
C204	403 121 9509	CERAMIC 0.1U Z 50V	1
C205	403 049 1708	ELECT 1U M 50V	1
C206	403 049 1708	ELECT 1U M 50V	1
C207	403 049 5508	ELECT 10U M 50V	1
C208	403 121 9509	CERAMIC 0.1U Z 50V	1
C209	404 039 4402	ELECT 100U M 10V	1
C210	404 039 4303	ELECT 2200U M 10V	1
C211	403 069 1207	CERAMIC 1000P K 50V	1
C212	403 121 9509	CERAMIC 0.1U Z 50V	1
C213	403 121 9509	CERAMIC 0.1U Z 50V	1
C215	403 121 9509	CERAMIC 0.1U Z 50V	1
C216	403 121 9509	CERAMIC 0.1U Z 50V	1
C218	403 001 1906	CERAMIC 0.01U M 16V	1
C219	403 038 2709	ELECT 100U M 6.3V	1
C220	403 038 2709	ELECT 100U M 6.3V	1
C221	403 050 3708	ELECT 22U M 50V	1
C222	403 073 7004	CERAMIC 470P K 50V	1
R201	401 024 7004	CARBON 1K JA 1/6W	1
R206	401 024 6700	CARBON 100 JA 1/6W	1
R207	401 024 6700	CARBON 100 JA 1/6W	1
R208	401 024 6700	CARBON 100 JA 1/6W	1
R209	401 020 2904	CARBON 47K JA 1/4W	1
R210	401 024 7707	CARBON 100K JA 1/6W	1
R211	401 012 4503	CARBON 100 JA 1/4W	1
R212	401 024 6403	CARBON 10 JA 1/6W	1
R214	401 024 7400	CARBON 10K JA 1/6W	1
R215	401 027 0507	CARBON 470K JA 1/6W	1
R216	401 022 3107	CARBON 6.8K JA 1/4W	1
R217	401 025 4606	CARBON 18K JA 1/6W	1
R218	401 027 3003	CARBON 56K JA 1/6W	1
R219	401 018 2800	CARBON 330 JA 1/4W	1
R220	401 012 5708	CARBON 1K JA 1/4W	1
R221	401 012 3407	CARBON 10 JA 1/4W	1
R222	401 015 0502	CARBON 18 JA 1/4W	1
R224	401 015 0502	CARBON 18 JA 1/4W	1
R226	401 026 9600	CARBON 470 JA 1/6W	1
R227	401 024 7400	CARBON 10K JA 1/6W	1
R228	401 024 7400	CARBON 10K JA 1/6W	1
R229	401 027 2600	CARBON 5.6K JA 1/6W	1
R230	401 027 2600	CARBON 5.6K JA 1/6W	1
R231	401 012 4503	CARBON 100 JA 1/4W	1
R232	401 012 4503	CARBON 100 JA 1/4W	1
R233	401 021 1906	CARBON 560 JA 1/4W	1
R234	401 024 7707	CARBON 100K JA 1/6W	1
R240	401 012 5708	CARBON 1K JA 1/4W	1

Ref. No.	Part No.	Description	Q'ty
R249	401 015 0502	CARBON 18 JA 1/4W	1
R254	401 026 9907	CARBON 4.7K JA 1/6W	1
R256	401 026 9907	CARBON 4.7K JA 1/6W	1
R257	401 021 4105	CARBON 56K JA 1/4W	1
R258	401 024 7400	CARBON 10K JA 1/6W	1
R260	401 027 5205	CARBON 680 JA 1/6W	1

## ASSY,PCB,REMOTE CONTROL

Ref. No.	Part No.	Description	Q'ty
66	620 202 1539	Assy,PCB,Remote Control	1
	620 055 4985	Jumper	1
JH204	620 201 0373	Socket,Holder,3P	1
RX201	620 200 0909	Converter,Remote,DET	1

## ASSY,PCB,STANDBY,LED

Ref. No.	Part No.	Description	Q'ty
67	620 202 1546	Assy,PCB,Standby,LED	1
JH205	620 201 0144	Socket,Holder,2P	1
W202	620 202 3090	Wire,Jumper,2P L=100	1
D230	407 106 5500	LED ULP-R73B-50	1

## ASSY,PCB,VOLUME,LED

Ref. No.	Part No.	Description	Q'ty
68	620 202 1553	Assy,PCB,Volume,LED	1
JH206	620 202 9054	Socket,Holder,2P	1
D231	407 065 5009	LED SLP-190B-51	1

## ASSY,PCB,MAIN/TUNER

Ref. No.	Part No.	Description	Q'ty
69	620 202 1560	Assy,PCB,Main/Tuner	1
	620 202 1874	PCB,Tuner,Shield	1

(Component parts used in Front End are not serviceable and available.)

Ref. No.	Part No.	Description	Q'ty
	620 182 6180	Frontend FM4EU W/AGC	1
	620 021 6814	Pin 1P	5
	620 022 2921	ANT Terminal 3P	1
Δ	423 003 9809	FUSE 250V 0.63A	1
Δ	423 007 2103	FUSE 250V 4A	2
	411 020 8004	SCR S-TPG BRZ 3X8	2
	620 202 3434	Fuse Holder,Taping	6
	620 202 3458	Terminal,1P	3
	620 202 3472	Terminal,Wrapper,2P	1
	620 203 7035	Terminal,3P	1
	620 050 2450	Metal Mount Antenna	2
	620 183 1054	Cover Shield Top	1
	620 183 1061	Plate Shield	1
	620 183 1146	Plate Sever	1
	620 053 8084	Plate Heat Sink	1
	620 053 9241	Plate Heat Sink	1
	620 204 5535	Assy,Wire,1P	1
CF301	620 026 6741	Mechanical Filter	1
CF302	620 014 5664	Ceramic Filter	1
CF303	620 014 6319	Ceram.OSC CSB456F11	1
CN110	620 203 4720	Connector-P,5512-NA,14P	1
CN111	620 202 3335	Connector-P,5530-NA,8P	1
CN301	620 202 3342	Connector-P,5530-NA,9P	1
CN401	620 202 3342	Connector-P,5530-NA,9P	1
CN501	620 202 3342	Connector-P,5530-NA,9P	1
CR301	620 007 1338	Crystal 7.2MHz	1
or	620 007 1314	Crystal 7.2MHz	1
F302	620 191 6607	FTZ Antenna Filter	1
or	620 026 9353	FTZ Antenna Filter	1
JH401	620 202 2208	Socket,Housing,5P	1
JH502	620 202 2222	Socket,Housing,7P	1
L301	620 197 9442	Inductor 470UH K	1
L302	620 185 9041	MW Antenna Coil	1
or	620 028 1348	MW Antenna Coil	1
L303	620 028 2901	LW Antenna Coil	1
or	620 028 1362	LW Antenna Coil	1
L304	620 185 9058	OSC Coil MW	1
or	620 190 3676	OSC Coil MW	1
or	620 028 7784	OSC Coil MW	1
L305	620 192 7481	OSC Coil LW	1
L306	620 027 7419	IFT AM 450K	1
L307	620 189 6008	IFT DET 10.7MHz 1st K	1
L308	620 189 6015	IFT DET 10.7MHz 2nd K	1
L309	620 026 4396	Anti Birdie Filter	1
L401	620 027 1240	AF Coil	1
L402	620 027 1240	AF Coil	1
TC301	620 007 0867	Trimmer 10PF	1

# P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
TC302	620 189 9108	Trimmer 20PF	1	Q504	405 019 2005	TR 2SC536-E-SPA-AC	1
TH401	407 109 6702	THERMISTOR 300D-5	1	or	405 019 2807	TR 2SC536-F-SPA-AC	1
TH402	407 109 6702	THERMISTOR 300D-5	1	Q505	405 007 5100	TR 2SB560-E-MP	1
VR301	620 202 2079	Potentiometer, 10KB, TP	1	or	405 007 5308	TR 2SB560-F-MP	1
VR302	620 202 2086	Potentiometer, 47KB, TP	1	Q506	405 006 7006	TR 2SA984K-E-AA	1
VR303	620 202 2093	Potentiometer, 220KB, TP	1	or	405 006 7204	TR 2SA984K-F-AA	1
VR401	620 202 3830	Potentiometer, 220B, TP	1	If necessary, replace both Diode D301, D302 (SVC321) together with new ones which have the equivalent characteristics.			
VR402	620 202 3830	Potentiometer, 220B, TP	1				
W301	620 017 9102	Connector 1P Assy	1	D301	407 000 4708	VARACTOR DI SVC321C-2	1
IC301	409 073 9505	IC LA1266	1	or	407 000 4807	VARACTOR DI SVC321D-2	1
IC302	409 025 7306	IC LM7000	1	D302	407 000 4708	VARACTOR DI SVC321C-2	1
IC303	409 017 1008	IC LA3401	1	or	407 000 4807	VARACTOR DI SVC321D-2	1
IC401	409 079 9509	IC LA2500	1	D303	407 012 4208	DIODE 1SS131-T-77	1
IC402	409 079 9509	IC LA2500	1	or	407 077 0504	DIODE 1SS133-K	1
IC501	409 195 0503	IC NJM78M18FA	1	D304	407 012 4208	DIODE 1SS131-T-77	1
IC502	409 199 7300	IC NJM79M18FA	1	or	407 077 0504	DIODE 1SS133-K	1
IC503	409 140 0503	IC NJM78M12FA	1	D305	407 012 4208	DIODE 1SS131-T-77	1
Q301	405 027 0505	TR 2SK246-GR (TPE2)	1	or	407 008 0405	DIODE GMB01-BT	1
Q302	405 039 5802	TR 2SC3792-AA	1	D306	407 012 4208	DIODE 1SS131-T-77	1
Q303	405 018 2808	TR 2SC3402-AC	1	or	407 077 0504	DIODE 1SS133-K	1
Q304	405 037 0809	TR 2SC4048-AC	1	D307	407 012 4208	DIODE 1SS131-T-77	1
Q305	405 021 0907	TR 2SD1012-H-SPA-AC	1	or	407 077 0504	DIODE 1SS133-K	1
Q306	405 018 2501	TR 2SC3399-AC	1	D308	407 005 3805	DIODE DS442-BT	1
Q307	405 027 8402	TR 2SK583	1	D309	407 049 8101	ZENER DIODE GZA2.0X-BT	1
Q308	405 027 8402	TR 2SK583	1	or	407 049 8309	ZENER DIODE GZA2.0Z-BT	1
Q309	405 003 7603	TR 2SA1345-AC	1	D311	407 005 3805	DIODE DS442-BT	1
Q310	405 003 7702	TR 2SA1346-AC	1	D401	407 012 4208	DIODE 1SS131-T-77	1
Q311	405 018 2501	TR 2SC3399-AC	1	or	407 008 0405	DIODE GMB01-BT	1
Q312	405 060 9404	TR 2SA1590-AC	1	D402	407 012 4208	DIODE 1SS131-T-77	1
Q313	405 019 2005	TR 2SC536-E-SPA-AC	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	D403	407 012 4208	DIODE 1SS131-T-77	1
Q314	405 019 2005	TR 2SC536-E-SPA-AC	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	D404	407 012 4208	DIODE 1SS131-T-77	1
Q315	405 036 3306	TR 2SA1522-AC	1	or	407 008 0405	DIODE GMB01-BT	1
Q316	405 019 2005	TR 2SC536-E-SPA-AC	1	D405	407 012 4208	DIODE 1SS131-T-77	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	or	407 008 0405	DIODE GMB01-BT	1
Q317	405 018 2501	TR 2SC3399-AC	1	D406	407 012 4208	DIODE 1SS131-T-77	1
Q401	405 016 8901	TR 2SC3066-F	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 016 9007	TR 2SC3066-G	1	D407	407 012 4208	DIODE 1SS131-T-77	1
Q402	405 016 8901	TR 2SC3066-F	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 016 9007	TR 2SC3066-G	1	D408	407 012 4208	DIODE 1SS131-T-77	1
Q403	405 002 9103	TR 2SA1209-S	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 002 9202	TR 2SA1209-T	1	D409	407 012 4208	DIODE 1SS131-T-77	1
Q404	405 002 9103	TR 2SA1209-S	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 002 9202	TR 2SA1209-T	1	D410	407 012 4208	DIODE 1SS131-T-77	1
Q405	405 016 3906	TR 2SC2911-S	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 016 4002	TR 2SC2911-T	1	D411	407 012 4208	DIODE 1SS131-T-77	1
Q406	405 016 3906	TR 2SC2911-S	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 016 4002	TR 2SC2911-T	1	D412	407 012 4208	DIODE 1SS131-T-77	1
Q409	405 017 2601	TR 2SC3117-S	1	or	407 008 0405	DIODE GMB01-BT	1
or	405 017 2700	TR 2SC3117-T	1	D413	407 051 5105	ZENER DIODE GZS20X-BT	1
Q410	405 017 2601	TR 2SC3117-S	1	or	407 051 5204	ZENER DIODE GZS20Y-BT	1
or	405 017 2700	TR 2SC3117-T	1	D507	407 092 4105	DIODE DSA20TC-KD3	1
Q411	405 003 1601	TR 2SA1249-S	1	D508	407 092 4105	DIODE DSA20TC-KD3	1
or	405 003 1700	TR 2SA1249-T	1	D509	407 092 4105	DIODE DSA20TC-KD3	1
Q412	405 003 1601	TR 2SA1249-S	1	D510	407 092 4105	DIODE DSA20TC-KD3	1
or	405 003 1700	TR 2SA1249-T	1	D511	407 070 1904	ZENER DIODE GZS16Y	1
Q417	405 019 2005	TR 2SC536-E-SPA-AC	1	or	407 070 2000	ZENER DIODE GZS16Z	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	D512	407 050 4703	ZENER DIODE GZA5.1X-BT	1
Q418	405 019 2005	TR 2SC536-E-SPA-AC	1	or	407 050 4802	ZENER DIODE GZA5.1Y-BT	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	D513	407 050 0101	ZENER DIODE GZA24Y-BT	1
Q419	405 004 4007	TR 2SA608-E-SPA-AC	1	or	407 050 0200	ZENER DIODE GZA24Z-BT	1
or	405 004 4601	TR 2SA608-F-SPA-AC	1	D514	407 088 6502	DIODE MPG06D-PKG3	1
Q420	405 004 4007	TR 2SA608-E-SPA-AC	1	D515	407 088 6502	DIODE MPG06D-PKG3	1
or	405 004 4601	TR 2SA608-F-SPA-AC	1	D516	407 088 6502	DIODE MPG06D-PKG3	1
Q421	405 013 7204	TR 2SC2274K-E-AA	1	D517	407 088 6502	DIODE MPG06D-PKG3	1
or	405 013 7303	TR 2SC2274K-F-AA	1	D518	407 051 7109	ZENER DIODE GZS6.2X-BT	1
Q422	405 006 7006	TR 2SA984K-E-AA	1	or	407 051 7208	ZENER DIODE GZS6.2Y-BT	1
or	405 006 7204	TR 2SA984K-F-AA	1	C301	403 143 2809	CERAMIC 0.047U Z 50V	1
Q423	405 018 2808	TR 2SC3402-AC	1	C302	403 026 2209	CERAMIC 47P J 50V	1
Q424	405 019 2005	TR 2SC536-E-SPA-AC	1	C303	403 143 2809	CERAMIC 0.047U Z 50V	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	C304	403 143 2809	CERAMIC 0.047U Z 50V	1
Q425	405 019 2005	TR 2SC536-E-SPA-AC	1	C306	403 121 9509	CERAMIC 0.1U Z 50V	1
or	405 019 2807	TR 2SC536-F-SPA-AC	1	C307	403 042 3600	ELECT 100U M 16V	1
Q426	405 003 7900	TR 2SA1348-AC	1	C309	403 121 9509	CERAMIC 0.1U Z 50V	1
Q427	405 018 2501	TR 2SC3399-AC	1	C310	403 143 2809	CERAMIC 0.047U Z 50V	1
Q428	405 018 2808	TR 2SC3402-AC	1				
Q503	405 035 7107	TR 2SD1913-R	1				
or	405 035 7206	TR 2SD1913-S	1				

# **P.C.BOARD PARTS LIST (Continued)**

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty	
C311	403 001 1906	CERAMIC	0.01U M 16V	1	C416	403 121 0506	ELECT 22U M 63V	1
C312	403 042 3600	ELECT	100U M 16V	1	C417	403 121 0506	ELECT 22U M 63V	1
C313	403 043 1100	ELECT	220U M 16V	1	C418	403 121 0506	ELECT 22U M 63V	1
C314	403 001 1906	CERAMIC	0.01U M 16V	1	C419	403 016 2004	CERAMIC 2.2P K 50V	1
C316	403 049 1708	ELECT	1U M 50V	1	C420	403 016 2004	CERAMIC 2.2P K 50V	1
C317	403 143 2809	CERAMIC	0.047U Z 50V	1	C421	403 121 9509	CERAMIC 0.1U Z 50V	1
C318	403 143 2809	CERAMIC	0.047U Z 50V	1	C422	403 121 9509	CERAMIC 0.1U Z 50V	1
C319	403 001 1906	CERAMIC	0.01U M 16V	1	C423	403 036 2503	CERAMIC 47P K 500V	1
C320	403 038 7209	ELECT	220U M 6.3V	1	C424	403 036 2503	CERAMIC 47P K 500V	1
C321	403 143 2809	CERAMIC	0.047U Z 50V	1	C425	403 035 7103	CERAMIC 220P K 500V	1
C322	403 088 4104	STYRENE	430P J 50V	1	C426	403 035 7103	CERAMIC 220P K 500V	1
C323	403 014 2600	CERAMIC	18P J 50V	1	C427	403 049 1708	ELECT 1U M 50V	1
C324	403 030 6309	CERAMIC	68P J 50V	1	C428	403 049 1708	ELECT 1U M 50V	1
C325	403 143 2809	CERAMIC	0.047U Z 50V	1	C429	403 049 1708	ELECT 1U M 50V	1
C326	403 143 2809	CERAMIC	0.047U Z 50V	1	C430	403 049 1708	ELECT 1U M 50V	1
C327	403 088 1103	STYRENE	330P J 50V	1	C431	403 143 2809	CERAMIC 0.047U Z 50V	1
C328	403 049 5508	ELECT	10U M 50V	1	C432	403 143 2809	CERAMIC 0.047U Z 50V	1
C329	403 031 3901	CERAMIC	7P C 50V	1	C433	403 045 9104	ELECT 220U M 25V	1
C330	403 024 1501	CERAMIC	39P J 50V	1	C434	403 039 4504	ELECT 470U M 6.3V	1
C331	403 051 2106	ELECT	4.7U M 50V	1	C435	403 044 0300	ELECT 47U M 16V	1
C332	403 051 2106	ELECT	4.7U M 50V	1	C443	403 038 7209	ELECT 220U M 6.3V	1
C333	403 001 1906	CERAMIC	0.01U M 16V	1	C444	403 038 7209	ELECT 220U M 6.3V	1
C334	403 049 1708	ELECT	1U M 50V	1	C506	404 012 6904	CERAMIC 0.047U Z 150V	1
C335	403 001 1906	CERAMIC	0.01U M 16V	1	C507	620 202 3441	Capacitor,4700U,55V	1
C336	403 050 7805	ELECT	3.3U M 50V	1	C508	620 202 3441	Capacitor,4700U,55V	1
C337	403 001 6802	CERAMIC	3300P N 16V	1	C509	403 047 4305	ELECT 47U M 25V	1
C338	403 050 1308	ELECT	2.2U M 50V	1	C510	403 047 4305	ELECT 47U M 25V	1
C339	403 069 1207	CERAMIC	1000P K 50V	1	C511	403 047 4305	ELECT 47U M 25V	1
C340	403 069 1207	CERAMIC	1000P K 50V	1	C512	403 042 6205	ELECT 1000U M 16V	1
C341	403 049 1708	ELECT	1U M 50V	1	C513	403 044 0300	ELECT 47U M 16V	1
C342	403 069 1207	CERAMIC	1000P K 50V	1	C514	403 038 7209	ELECT 220U M 6.3V	1
C343	403 043 1100	ELECT	220U M 16V	1	C515	403 050 3708	ELECT 22U M 50V	1
C344	403 026 2407	CERAMIC	47P J 50V	1	C516	403 052 8107	ELECT 100U M 35V	1
C345	403 069 1504	CERAMIC	1000P K 50V	1	C517	403 143 2809	CERAMIC 0.047U Z 50V	1
C346	403 069 1504	CERAMIC	1000P K 50V	1	C518	403 047 6309	ELECT 470U M 25V	1
C347	403 069 1504	CERAMIC	1000P K 50V	1	C519	403 042 3600	ELECT 100U M 16V	1
C348	403 068 9402	CERAMIC	100P K 50V	1	C520	403 038 2402	ELECT 100U M 6.3V	1
C349	403 001 1906	CERAMIC	0.01U M 16V	1	C521	403 121 9509	CERAMIC 0.1U Z 50V	1
C350	403 038 7209	ELECT	220U M 6.3V	1	C522	403 121 9509	CERAMIC 0.1U Z 50V	1
C351	403 022 5907	CERAMIC	33P J 50V	1	C524	403 143 2809	CERAMIC 0.047U Z 50V	1
C352	403 022 5907	CERAMIC	33P J 50V	1	C525	403 002 2902	CERAMIC 0.01U M 25V	1
C354	403 001 1906	CERAMIC	0.01U M 16V	1	C526	404 012 6904	CERAMIC 0.047U Z 150V	1
C355	403 060 8700	POLYESTER	0.033U K 50V	1	R301	401 018 3807	CARBON 3.3K JA 1/4W	1
C356	403 073 3204	CERAMIC	390P K 50V	1	R303	401 012 8105	CARBON 100K JA 1/4W	1
C357	403 044 0300	ELECT	47U M 16V	1	R304	401 024 7004	CARBON 1K JA 1/6W	1
C358	403 071 6207	CERAMIC	220P K 50V	1	R305	401 027 0507	CARBON 470K JA 1/6W	1
C359	403 001 9100	CERAMIC	6800P N 16V	1	R306	401 026 1000	CARBON 2.7K JA 1/6W	1
C360	403 075 4506	CERAMIC	820P K 50V	1	R307	401 026 9600	CARBON 470 JA 1/6W	1
C361	403 067 7706	MT-COMPO	0.047U J 50V	1	R308	401 012 5708	CARBON 1K JA 1/4W	1
C362	403 069 1504	CERAMIC	1000P K 50V	1	R309	401 027 2600	CARBON 5.6K JA 1/6W	1
C363	403 049 5508	ELECT	10U M 50V	1	R310	401 019 9204	CARBON 47 JA 1/4W	1
C364	403 044 0300	ELECT	47U M 16V	1	R311	401 024 7707	CARBON 100K JA 1/6W	1
C366	403 049 1708	ELECT	1U M 50V	1	R312	401 024 7707	CARBON 100K JA 1/6W	1
C367	403 048 7701	ELECT	0.47U M 50V	1	R314	401 019 9204	CARBON 47 JA 1/4W	1
C368	403 049 1708	ELECT	1U M 50V	1	R315	401 026 4308	CARBON 3.3K JA 1/6W	1
C369	403 001 1906	CERAMIC	0.01U M 16V	1	R316	401 016 1102	CARBON 22 JA 1/4W	1
C370	403 143 2809	CERAMIC	0.047U Z 50V	1	R317	401 024 7400	CARBON 10K JA 1/6W	1
C371	403 072 4707	CERAMIC	270P K 50V	1	R318	401 026 2908	CARBON 3K JA 1/6W	1
C372	403 072 4707	CERAMIC	270P K 50V	1	R319	401 025 8208	CARBON 22K JA 1/6W	1
C373	403 050 1308	ELECT	2.2U M 50V	1	R320	401 024 7400	CARBON 10K JA 1/6W	1
C374	403 050 1308	ELECT	2.2U M 50V	1	R321	401 024 7400	CARBON 10K JA 1/6W	1
C375	403 001 6802	CERAMIC	3300P N 16V	1	R322	401 026 3905	CARBON 330 JA 1/6W	1
C376	403 001 6802	CERAMIC	3300P N 16V	1	R323	401 026 3905	CARBON 330 JA 1/6W	1
C377	403 001 1906	CERAMIC	0.01U M 16V	1	R324	401 026 1307	CARBON 27K JA 1/6W	1
C378	403 018 6109	CERAMIC	220P J 50V	1	R325	401 027 2600	CARBON 5.6K JA 1/6W	1
C379	403 002 2902	CERAMIC	0.01U M 25V	1	R326	401 026 9907	CARBON 4.7K JA 1/6W	1
C401	403 049 1708	ELECT	1U M 50V	1	R327	401 024 6700	CARBON 100 JA 1/6W	1
C402	403 049 1708	ELECT	1U M 50V	1	R328	401 012 8105	CARBON 100K JA 1/4W	1
C403	403 071 6207	CERAMIC	220P K 50V	1	R329	401 024 7707	CARBON 100K JA 1/6W	1
C404	403 071 6207	CERAMIC	220P K 50V	1	R330	401 024 7004	CARBON 1K JA 1/6W	1
C405	403 071 6207	CERAMIC	220P K 50V	1	R332	401 027 2600	CARBON 5.6K JA 1/6W	1
C406	403 071 6207	CERAMIC	220P K 50V	1	R333	401 025 7409	CARBON 220 JA 1/6W	1
C407	403 050 3708	ELECT	22U M 50V	1	R334	401 024 7004	CARBON 1K JA 1/6W	1
C408	403 050 3708	ELECT	22U M 50V	1	R335	401 024 7707	CARBON 100K JA 1/6W	1
C409	403 016 2004	CERAMIC	2.2P K 50V	1	R336	401 027 5502	CARBON 6.8K JA 1/6W	1
C410	403 016 2004	CERAMIC	2.2P K 50V	1	R337	401 025 4606	CARBON 18K JA 1/6W	1
C413	403 035 2207	CERAMIC	15P K 500V	1	R338	401 025 1605	CARBON 1.5K JA 1/6W	1
C414	403 035 2207	CERAMIC	15P K 500V	1	R339	401 026 4308	CARBON 3.3K JA 1/6W	1
C415	403 121 0506	ELECT	22U M 63V	1	R340	401 026 7002	CARBON 3.9K JA 1/6W	1

### P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty		
R341	401 026 1000	CARBON	2.7K JA 1/6W	1	R431	401 026 3905	CARBON	330 JA 1/6W	1
R342	401 025 7805	CARBON	2.2K JA 1/6W	1	R432	401 026 3905	CARBON	330 JA 1/6W	1
R343	401 024 7004	CARBON	1K JA 1/6W	1	R433	402 037 7203	FUSIBLE RES	330 JA 1/4W	1
R344	401 024 7004	CARBON	1K JA 1/6W	1	R434	402 037 7203	FUSIBLE RES	330 JA 1/4W	1
R345	401 026 4308	CARBON	3.3K JA 1/6W	1	R435	402 037 7104	FUSIBLE RES	2.2 JA 1/4W	1
R346	401 026 7002	CARBON	3.9K JA 1/6W	1	R436	402 037 7104	FUSIBLE RES	2.2 JA 1/4W	1
R347	401 024 7004	CARBON	1K JA 1/6W	1	R437	402 037 7104	FUSIBLE RES	2.2 JA 1/4W	1
R348	401 024 7004	CARBON	1K JA 1/6W	1	R438	402 037 7104	FUSIBLE RES	2.2 JA 1/4W	1
R349	401 019 9600	CARBON	47 JA 1/4W	1	R439	401 153 3403	OXIDE-MT	0.33 JB 2W	1
R350	401 024 7400	CARBON	10K JA 1/6W	1	R440	401 153 3403	OXIDE-MT	0.33 JB 2W	1
R351	401 024 7400	CARBON	10K JA 1/6W	1	R441	401 153 3403	OXIDE-MT	0.33 JB 2W	1
R352	401 012 8105	CARBON	100K JA 1/4W	1	R442	401 153 3403	OXIDE-MT	0.33 JB 2W	1
R353	401 024 7004	CARBON	1K JA 1/6W	1	R443	401 018 2800	CARBON	330 JA 1/4W	1
R354	401 024 7400	CARBON	10K JA 1/6W	1	R444	401 018 2800	CARBON	330 JA 1/4W	1
R355	401 024 7400	CARBON	10K JA 1/6W	1	R445	401 018 2800	CARBON	330 JA 1/4W	1
R356	401 024 7400	CARBON	10K JA 1/6W	1	R446	401 018 2800	CARBON	330 JA 1/4W	1
R357	401 024 7400	CARBON	10K JA 1/6W	1	R447	401 022 3107	CARBON	6.8K JA 1/4W	1
R358	401 021 3009	CARBON	5.6K JA 1/4W	1	R448	401 022 3107	CARBON	6.8K JA 1/4W	1
R359	401 026 4308	CARBON	3.3K JA 1/6W	1	R449	401 022 3107	CARBON	6.8K JA 1/4W	1
R360	401 016 1102	CARBON	22 JA 1/4W	1	R450	401 022 3107	CARBON	6.8K JA 1/4W	1
R361	401 026 4308	CARBON	3.3K JA 1/6W	1	R451	402 040 6101	OXIDE-MT	10 JB 1/2W	1
R362	401 024 7707	CARBON	100K JA 1/6W	1	R452	402 040 6101	OXIDE-MT	10 JB 1/2W	1
R364	401 025 8208	CARBON	22K JA 1/6W	1	R453	401 019 9600	CARBON	47 JA 1/4W	1
R365	401 014 5201	CARBON	15K JA 1/4W	1	R454	401 019 9600	CARBON	47 JA 1/4W	1
R367	401 024 7400	CARBON	10K JA 1/6W	1	R455	401 020 2003	CARBON	4.7K JA 1/4W	1
R368	401 024 7400	CARBON	10K JA 1/6W	1	R456	401 027 0309	CARBON	47K JA 1/6W	1
R369	401 025 4903	CARBON	180K JA 1/6W	1	R457	401 027 0309	CARBON	47K JA 1/6W	1
R370	401 025 4903	CARBON	180K JA 1/6W	1	R458	401 024 7400	CARBON	10K JA 1/6W	1
R371	401 025 4903	CARBON	180K JA 1/6W	1	R459	401 024 7400	CARBON	10K JA 1/6W	1
R372	401 025 4903	CARBON	180K JA 1/6W	1	R460	401 013 6407	CARBON	12K JA 1/4W	1
R373	401 025 7805	CARBON	2.2K JA 1/6W	1	R461	401 021 4105	CARBON	56K JA 1/4W	1
R374	401 025 7805	CARBON	2.2K JA 1/6W	1	R462	401 021 4105	CARBON	56K JA 1/4W	1
R375	401 027 2600	CARBON	5.6K JA 1/6W	1	R464	401 027 0309	CARBON	47K JA 1/6W	1
R376	401 027 2600	CARBON	5.6K JA 1/6W	1	R504	402 039 9205	OXIDE-MT	470 JB 1W	1
R377	401 024 7004	CARBON	1K JA 1/6W	1	R505	402 039 9205	OXIDE-MT	470 JB 1W	1
R378	401 024 7004	CARBON	1K JA 1/6W	1	R506	402 040 2301	OXIDE-MT	68 JB 2W	1
R379	401 025 7805	CARBON	2.2K JA 1/6W	1	R507	402 040 2301	OXIDE-MT	68 JB 2W	1
R380	401 025 7805	CARBON	2.2K JA 1/6W	1	R508	401 021 3009	CARBON	5.6K JA 1/4W	1
R381	401 026 1000	CARBON	2.7K JA 1/6W	1	R509	401 012 5708	CARBON	1K JA 1/4W	1
R382	401 019 1901	CARBON	3.9K JA 1/4W	1	R510	402 039 9403	OXIDE-MT	330 JB 1W	1
R384	401 018 3807	CARBON	3.3K JA 1/4W	1	R511	401 018 3807	CARBON	3.3K JA 1/4W	1
R385	401 020 2003	CARBON	4.7K JA 1/4W	1	R512	401 025 8208	CARBON	22K JA 1/6W	1
R386	401 020 0801	CARBON	470 JA 1/4W	1	R514	401 016 2604	CARBON	220 JA 1/4W	1
R387	401 012 5708	CARBON	1K JA 1/4W	1	R515	401 027 0309	CARBON	47K JA 1/6W	1
R389	401 027 0309	CARBON	47K JA 1/6W	1	R516	401 027 0309	CARBON	47K JA 1/6W	1
R390	401 025 8208	CARBON	22K JA 1/6W	1	R517	402 039 3203	FUSIBLE RES	33 JA 1/4W	1
R391	401 020 0801	CARBON	470 JA 1/4W	1					
R392	401 013 4205	CARBON	120 JA 1/4W	1					
R393	401 016 1508	CARBON	22 JA 1/4W	1					
R401	401 024 7707	CARBON	100K JA 1/6W	1					
R402	401 024 7707	CARBON	100K JA 1/6W	1					
R403	401 024 7707	CARBON	100K JA 1/6W	1					
R404	401 024 7707	CARBON	100K JA 1/6W	1					
R405	401 027 4000	CARBON	620 JA 1/6W	1					
R406	401 027 4000	CARBON	620 JA 1/6W	1					
R407	401 024 7707	CARBON	100K JA 1/6W	1					
R408	401 024 7707	CARBON	100K JA 1/6W	1					
R409	401 025 7805	CARBON	2.2K JA 1/6W	1					
R410	401 025 7805	CARBON	2.2K JA 1/6W	1					
R411	401 025 7805	CARBON	2.2K JA 1/6W	1					
R412	401 025 7805	CARBON	2.2K JA 1/6W	1					
R413	401 014 5201	CARBON	15K JA 1/4W	1					
R414	401 014 5201	CARBON	15K JA 1/4W	1					
R415	402 037 6909	FUSIBLE RES	82 JA 1/4W	1					
R416	402 037 6909	FUSIBLE RES	82 JA 1/4W	1					
R417	402 037 6909	FUSIBLE RES	82 JA 1/4W	1					
R418	402 037 6909	FUSIBLE RES	82 JA 1/4W	1					
R419	401 018 4903	CARBON	33K JA 1/4W	1					
R420	401 018 4903	CARBON	33K JA 1/4W	1					
R421	402 037 7005	FUSIBLE RES	47 JA 1/4W	1					
R422	402 037 7005	FUSIBLE RES	47 JA 1/4W	1					
R423	402 037 7005	FUSIBLE RES	47 JA 1/4W	1					
R424	402 037 7005	FUSIBLE RES	47 JA 1/4W	1					
R425	401 019 9600	CARBON	47 JA 1/4W	1					
R426	401 019 9600	CARBON	47 JA 1/4W	1					
R427	401 019 9600	CARBON	47 JA 1/4W	1					
R428	401 019 9600	CARBON	47 JA 1/4W	1					
R429	401 024 6700	CARBON	100 JA 1/6W	1					
R430	401 024 6700	CARBON	100 JA 1/6W	1					

## P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
<b>ASSY,PCB,MAIN,TRANS</b>			
72	620 202 1591	Assy,PCB,Main,Trans	1
JH501	620 202 2222	Socket,Housing,7P	1
W501	620 202 4189	Wire,Jumper,7P L= 150	1
<b>ASSY,PCB,POWER SWITCH</b>			
73	620 202 1607	Assy,PCB,Power Switch	1
	620 185 1946	Jack 3P	1
	620 202 3472	Terminal,Wrapper,2P	1
	620 050 2450	Metal Mount Antenna	1
JH402	620 202 2208	Socket,Housing,5P	1
JH403	620 202 2215	Socket,Housing,6P	1
SW401	620 188 8393	Push 1KEY (SP-A)	1
SW402	620 188 8393	Push 1KEY (SP-B)	1
SW501△	620 015 2341	Switch Push Power	1
W401	620 202 4165	Wire,Jumper,5P L= 220	1
C445	403 143 2809	CERAMIC 0.047U Z 50V	1
R465	402 039 6006	OXIDE-MT 390 JB 2W	1
R466	402 039 6006	OXIDE-MT 390 JB 2W	1
R467	401 016 7500	CARBON 240 JA 1/4W	1
R468	401 016 7500	CARBON 240 JA 1/4W	1
R469	401 016 7500	CARBON 240 JA 1/4W	1
R470	401 016 7500	CARBON 240 JA 1/4W	1

Ref. No.	Part No.	Description	Q'ty
<b>ASSY,PCB,SPEAKER,TERMINAL</b>			
74	620 202 1614	Assy,PCB,Speaker,Terminal	1
	620 185 1953	Push Terminal 8P	1
JH404	620 202 2215	Socket,Housing,6P	1
W402	620 202 4172	Wire,Jumper,6P L= 280	1
C437	403 069 1504	CERAMIC 1000P K 50V	1
C438	403 069 1207	CERAMIC 1000P K 50V	1
C439	403 069 1207	CERAMIC 1000P K 50V	1
C440	403 069 1504	CERAMIC 1000P K 50V	1

### NOTES:

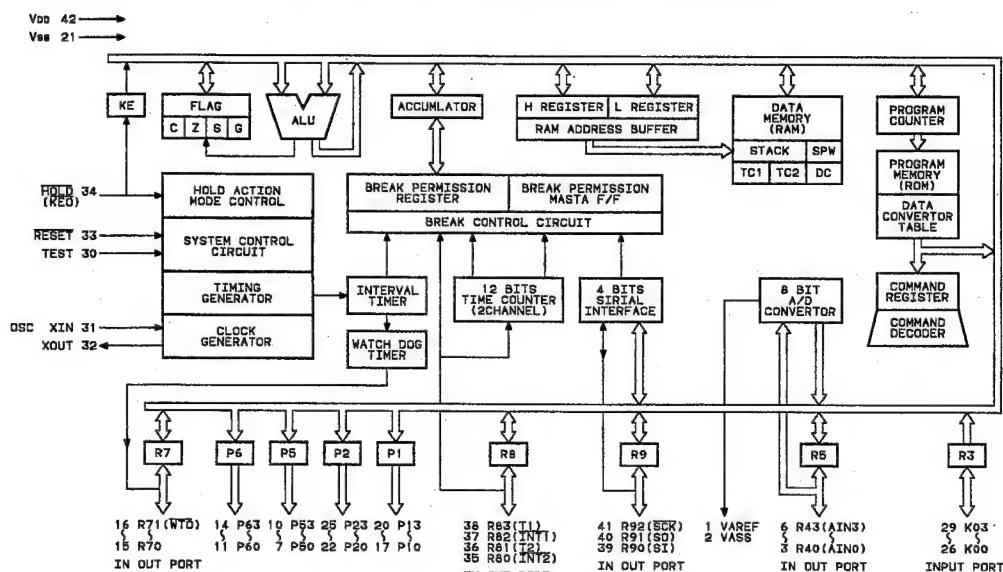
- Parts order must contain Model Number, Part Number and Description.
- Ordering quantity of screws and resistors must be multiple of 10 pcs.

### PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol △ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with △, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

## IC BLOCK DIAGRAM

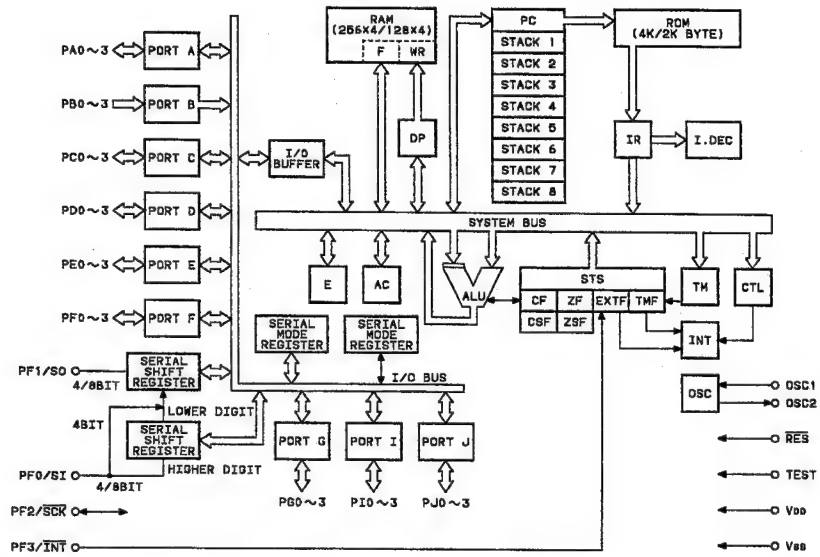
### TMP47C441AN-1669Z BLOCK DIAGRAM



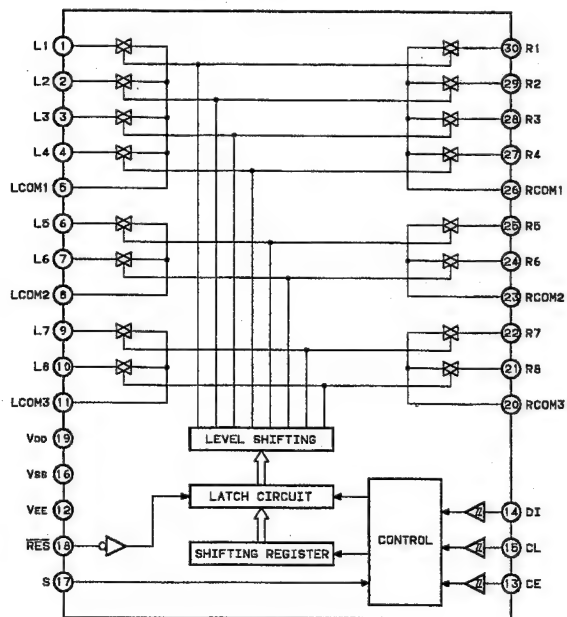


## IC BLOCK DIAGRAM (Continued)

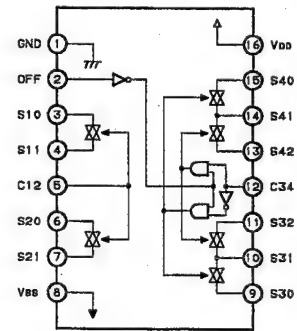
### LC6522H-3794 BLOCK DIAGRAM



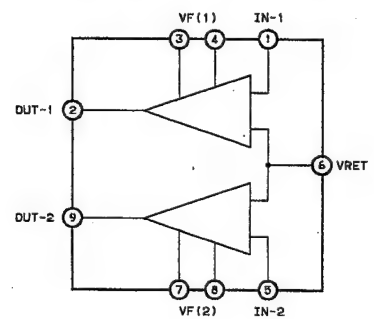
### LC7821 BLOCK DIAGRAM



### TC9215P BLOCK DIAGRAM



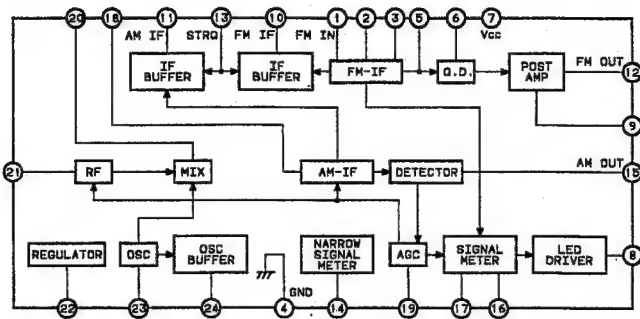
### LA2500 BLOCK DIAGRAM



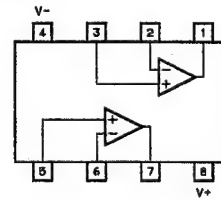


## IC BLOCK DIAGRAM (Continued)

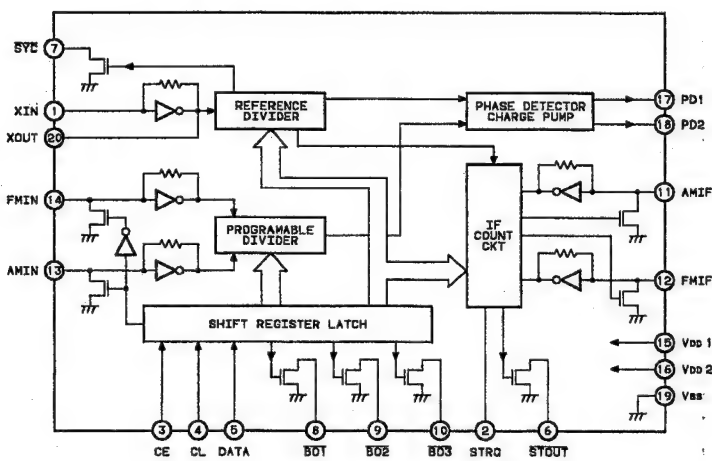
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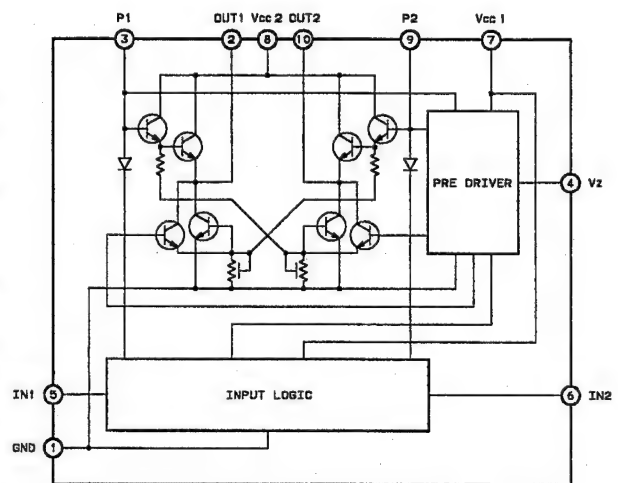
### UPC4570C BLOCK DIAGRAM RC4558 BLOCK DIAGRAM



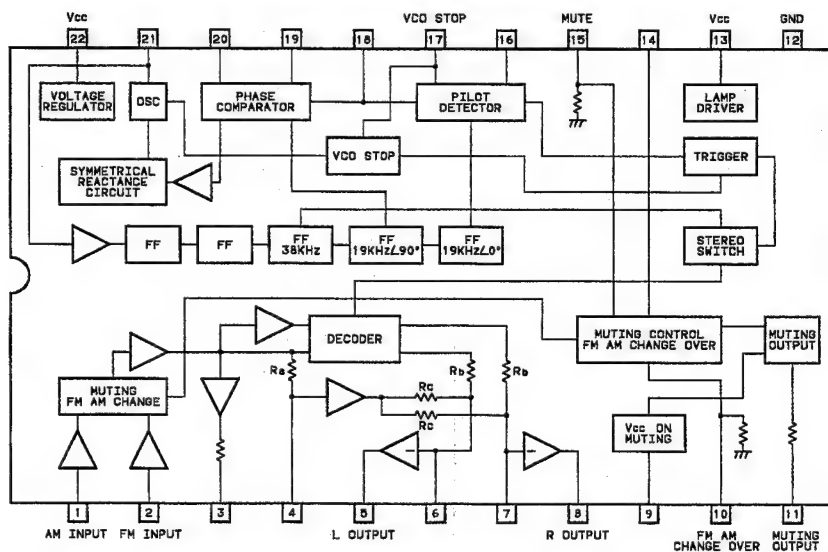
### LM7000 BLOCK DIAGRAM



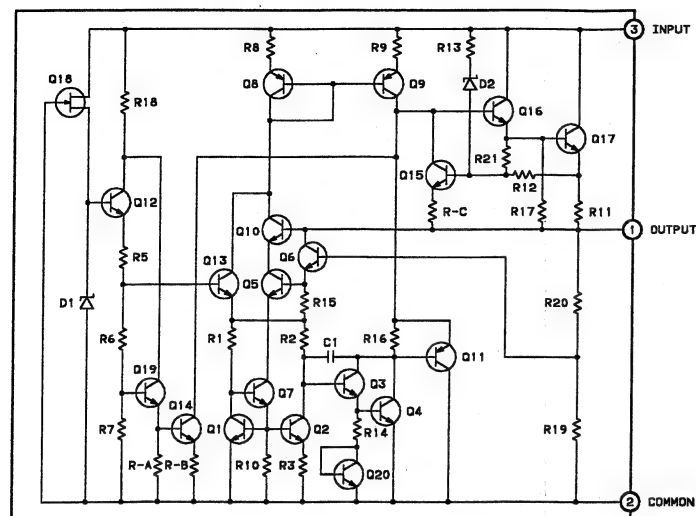
### LB1641 BLOCK DIAGRAM



### LA3401 BLOCK DIAGRAM



### NJM78M12FA BLOCK DIAGRAM

[illegible]

SW801  
POWER

SW401  
SPEAKERS  
A

ON/OFF

B  
SW402

CMK-17 3V3

R465

R466

R467

R468

R470

JH403

JH402

PHONES

12

11

TRANSISTOR DC VOLTAGES				
Ref. No.	DEVICE	B	C	E
Q117	2SC3899	0V	5.3V	0V

[illegible]









IC & TRANSISTOR REFERENCE VOLTAGE TABLE

IC PIN NUMBERS DC VOLTAGES																					
Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC103	TC9215P	0V	0V	0V	0V	4.2V	0V	0V	-13.8V	0V	0V	0V	4.2V	0V	0V	0V	14.3V	-	-	-	-
IC104	RC4558	0V	0V	0V	-13.8V	0V	0V	0V	14.2V	-	-	-	-	-	-	-	-	-	-	-	-

IC PIN NUMBERS DC VOLTAGES																					
Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC201	LC6522H	3.7V	3.6V	4.7V	4.7V	4.7V	4.7V	4.3V	5.5V	5.5V	5.5V	0V	4.9V	5.5V	3.0V	-0.1V	5.5V	0V	5.5V	0V	0V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		2.0V	1.4V	4.7V	0V	0V	0V	5.5V	5.5V	5.5V	0V	5.4V	4.7V	5.5V	5.5V	5.5V	5.5V	0V	5.5V	4.4V	4.8V
		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
		3.7V	3.1V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IC202	LB1641	0V	0V	0.5V	3.4V	0V	1.7V	15.8V	15.2V	4.8V	3.5V	-	-	-	-	-	-	-	-	-	
IC203	TMP47C441	3.1V	0V	0.3V	0V	4.6V	0V	-21.9V	-21.9V	-21.8V	-21.9V	-21.8V	-21.7V	-21.7V	-21.8V	5.4V	0V	-13.7V	-13.5V	-13.5V	-13.6V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	-13.7V	-6.2V	-2.4V	-13.9V	0.4V	0V	0.4V	0.4V	0V	2.1V	4.9V	4.8V	5.3V	5.5V	0V	0V	0V	0V	0V
		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
		0V	4.8V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

IC PIN NUMBERS DC VOLTAGES																					
Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC301	LA1266	2.4V	2.4V	2.4V	0V	11.4V	11.3V	11.3V	1.3V	3.7V	2.3V	3.3V	3.1V	0V	1.4V	1.5V	0V	0V	2.4V	1.5V	0.1V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		3.9V	3.9V	3.9V	3.0V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IC302	LM7000	1.5V	0V	0V	0V	5.5V	5.5V	0V	0V	11.9V	10.1V	0V	0V	0V	2.8V	5.4V	5.4V	1.5V	1.4V	0V	1.5V
IC303	LA3401	3.1V	3.1V	3.1V	3.1V	6.2V	3.1V	3.1V	6.1V	3.1V	0V	0.2V	0V	5.1V	4.9V	0V	2.8V	7.2V	4.3V	2.8V	5.5V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		1.7V	11.5V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

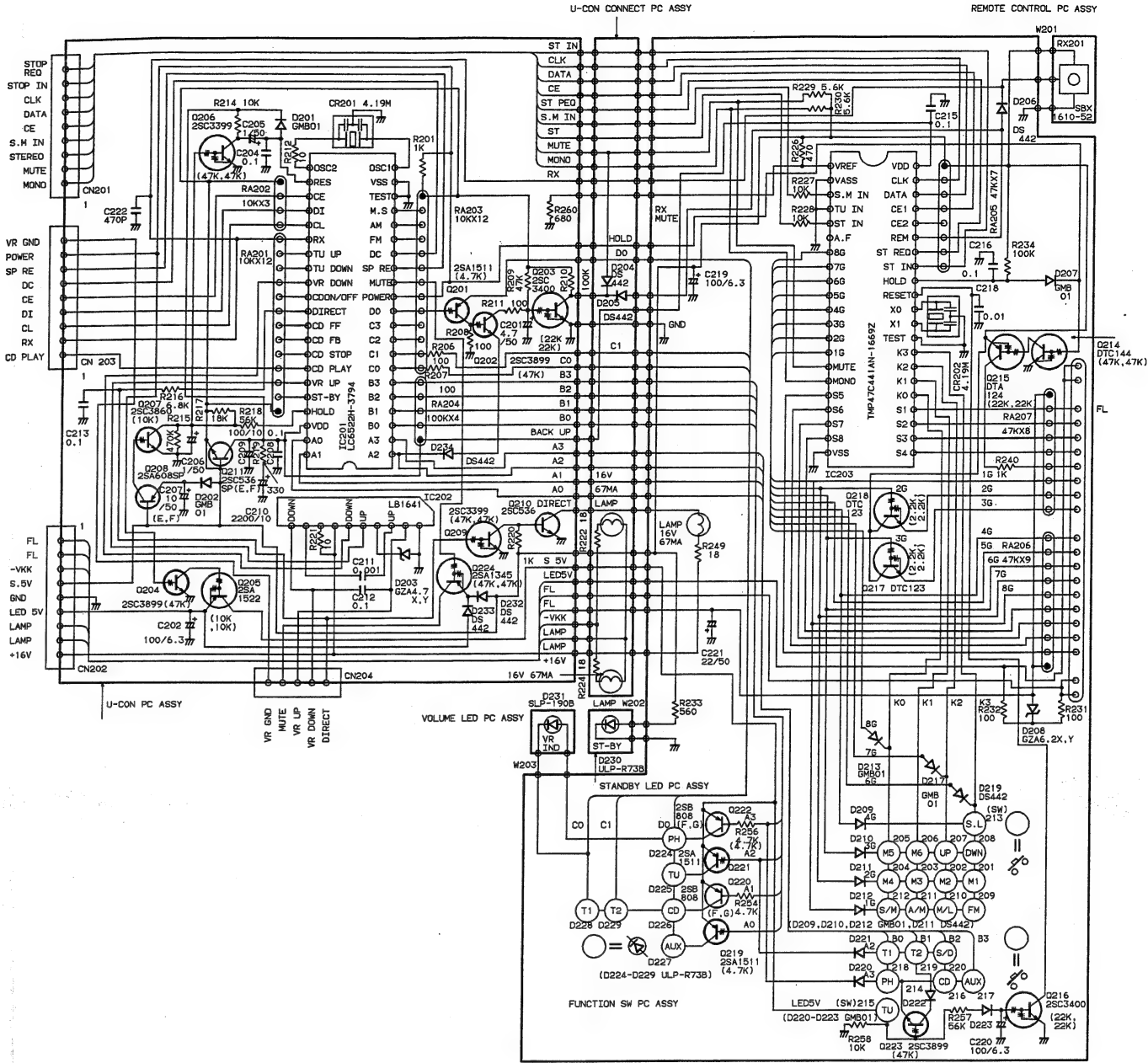
IC PIN NUMBERS DC VOLTAGES																					
Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC401,402	LA2500	1.1V	0.3V	1.0V	1.0V	−1.0V	0V	−0.5V	−0.5V	−0.3V	—	—	—	—	—	—	—	—	—	—	—
IC501	NJM78M18FA	18.1V	0V	35.8V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IC502	NJM79M18FA	−17.5V	−37.2V	0V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IC503	NJM78M12FA	11.9V	0V	19.3V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

TRANSISTOR DC VOLTAGES														
Ref. No.	DEVICE	B	C	E	Ref. No.	DEVICE	B	C	E	Ref. No.	DEVICE	B	C	E
Q101,102	2SC4038	-1.9V	0V	0V	Q204	2SC3899	4.9V	0V	0V	Q216	2SC3400	5.5V	1.8V	0V
Q107,108	2SC2021	-1.0V	13.8V	-1.6V	Q205	2SA1522	0V	4.5V	4.6V	Q217	DTC123	-25.3V	5.5V	-25.3V
Q109,110	2SC2021	-1.1V	13.8V	-0.4V	Q206	2SC3399	2.6V	0V	0V	Q218	DTC123	-25.3V	5.5V	-25.3V
Q111,112	2SC4038	-0.8V	13.8V	-0.2V	Q207	2SC3860	-0.3V	4.5V	0V	Q219	2SA1511	3.7V	3.2V	4.5V
Q113,114	2SC4038	-0.1V	13.7V	-0.8V	Q208	2SA608	5.5V	-0.5V	5.4V	Q220	2SB808	4.6V	2.6V	4.5V
Q115,116	2SC4038	-0.1V	13.7V	-0.7V	Q209	2SC3399	4.2V	0V	0V	Q221	2SA1511	3.7V	2.3V	4.5V
					Q210	2SC536	0V	15.8V	0V	Q222	2SB808	4.6V	3.6V	4.5V
Q201	2SA1511	4.2V	0.5V	2.9V	Q211	2SC536	5.5V	4.8V	5.5V	Q223	2SC3899	0V	4.6V	0.1V
Q202	2SC3899	0.5V	0.6V	0.4V	Q214	DTC144	4.9V	0V	0V	Q224	2SA1345	5.5V	-1.8V	5.4V
Q203	2SC3400	0.6V	5.5V	0V	Q215	DTA124	0V	1.8V	5.5V					

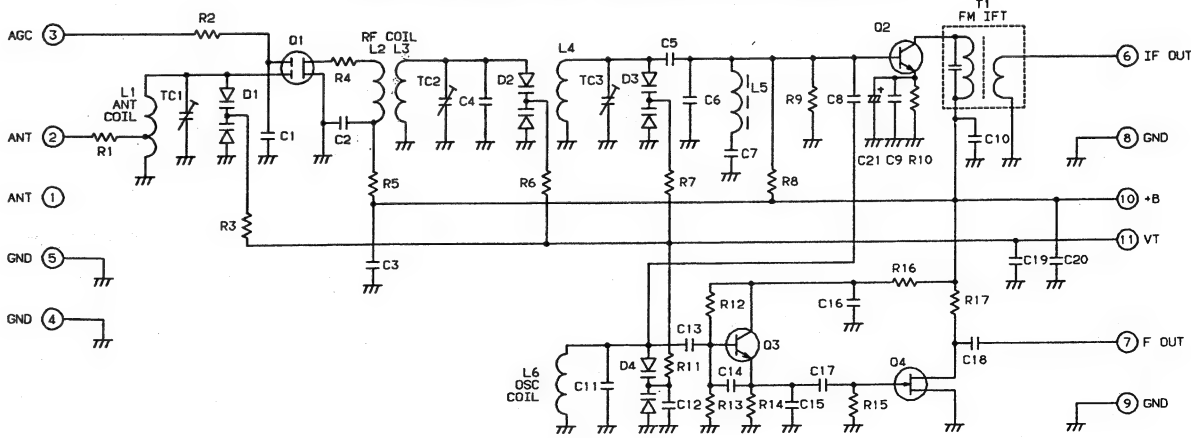
TRANSISTOR DC VOLTAGES														
Ref. No.	DEVICE	B	C	E	Ref. No.	DEVICE	B	C	E	Ref. No.	DEVICE	B	C	E
Q302	2SC3792	-6.5V	0V	0V	Q401,402	2SC3066	-0.1V	48.0V	-0.7V	Q426	2SA1348	5.5V	0V	5.5V
Q303	2SC3402	0V	0.1V	0V	Q403,404	2SA1209	47.9V	0V	48.5V	Q427	2SC3399	4.9V	0V	0V
Q304	2SC4048	0V	3.3V	0V	Q405,406	2SC2911	-47.9V	-1.3V	-48.5V	Q428	2SC3402	0.1V	17.2V	0V
Q305	2SD1012	0V	3.4V	0V	Q407,408	2SD1682	0.2V	0.3V	-0.3V					
Q306	2SC3399	0V	11.3V	0V	Q409,410	2SC3117	1.1V	49.4V	0.5V	Q501	2SC536	6.2V	9.2V	5.5V
Q309	2SA1345	1.5V	1.5V	0.1V	Q411,412	2SA1249	-1.0V	-49.5V	-0.5V	Q502	2SC3402	4.9V	0.1V	0V
Q310	2SA1345	0V	-6.5V	0.1V	Q413,414	2SC3181	0.5V	49.7V	0V					
Q311	2SC3399	10.1V	0V	0V	Q415,416	2SA1264	-0.5V	-49.8V	0V	Q503	2SD1913	15.9V	44.7V	16.4V
Q312	2SA1590	11.9V	0.1V	11.9V	Q417,418	2SC536	0V	1.0V	0V	Q504	2SC536	5.2V	15.8V	4.6V
Q313	2SC536	-6.5V	0V	0V	Q419,420	2SA608	0V	0V	0V	Q505	2SB560	-25.8V	-46.0V	-25.2V
Q314	2SC536	-6.5V	0V	0V	Q421	2SC2274	-48.9V	-49.5V	-49.5V	Q506	2SA984	-0.3V	-49.5V	0V
Q315	2SA1522	5.4V	-6.5V	5.0V	Q422	2SA984	17.4V	18.1V	18.1V					
Q316	2SC536	11.8V	11.8V	11.3V	Q423	2SA3402	3.1V	0V	0V	Q301	2SK246	4.0V	2.9V	10.8V
Q317	2SC3399	0V	11.8V	0V	Q424	2SC536	0V	5.5V	0V	Q307	2SK583	0V	1.4V	1.3V
					Q425	2SC536	0V	5.5V	0V	Q308	2SK583	0V	1.4V	0.5V

NOTES:  
All voltages indicated on the schematics are measured under the following conditions.  
a. Use a V.T.V.M.  
b. All voltages  $\pm 10\%$  with respect to chassis ground.  
c. No signals at input terminals.  
d. AC input at 220 volts 50 Hz.

SCHEMATIC DIAGRAM (1)

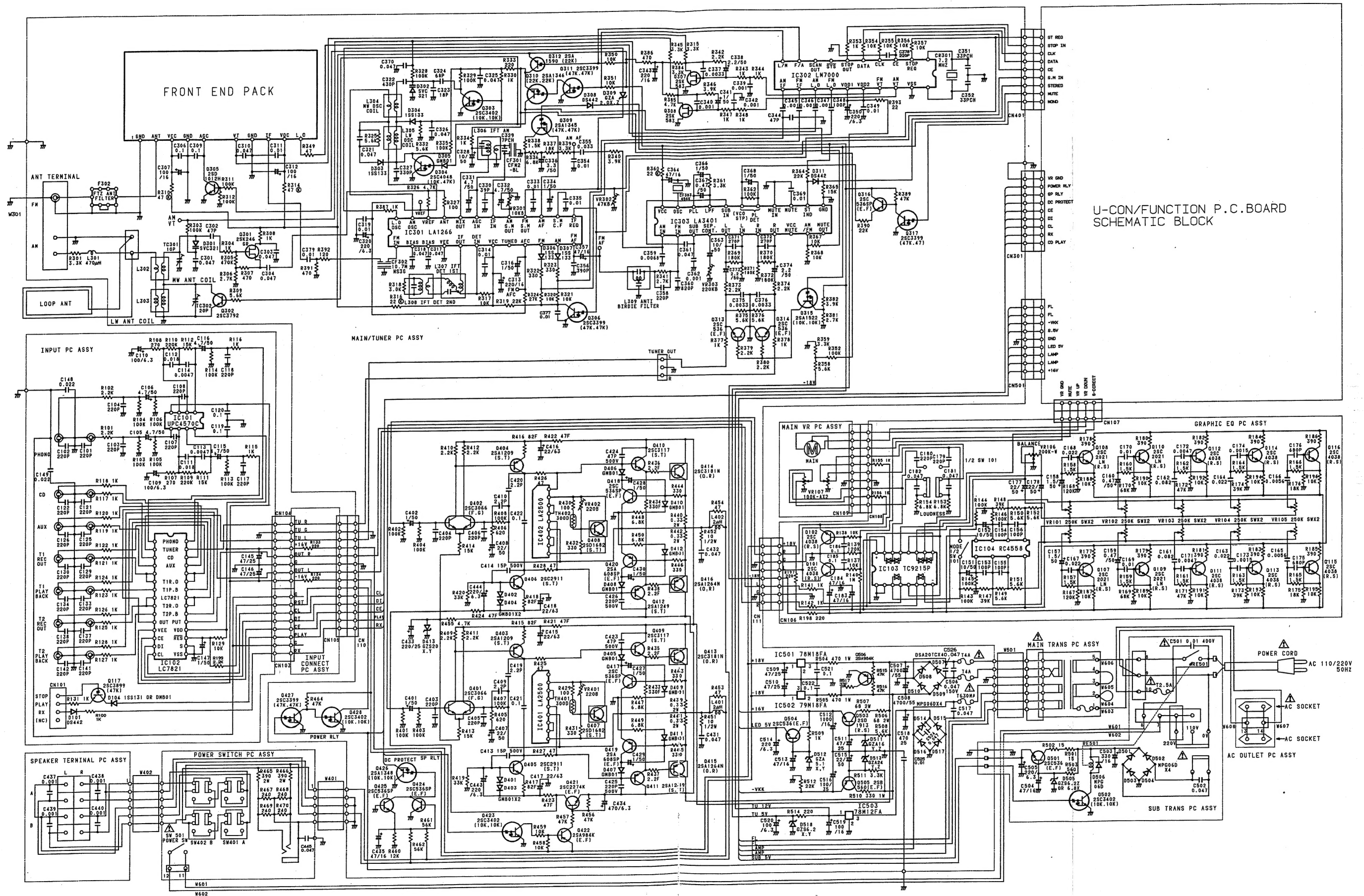


FRONT END SCHEMATIC DIAGRAM



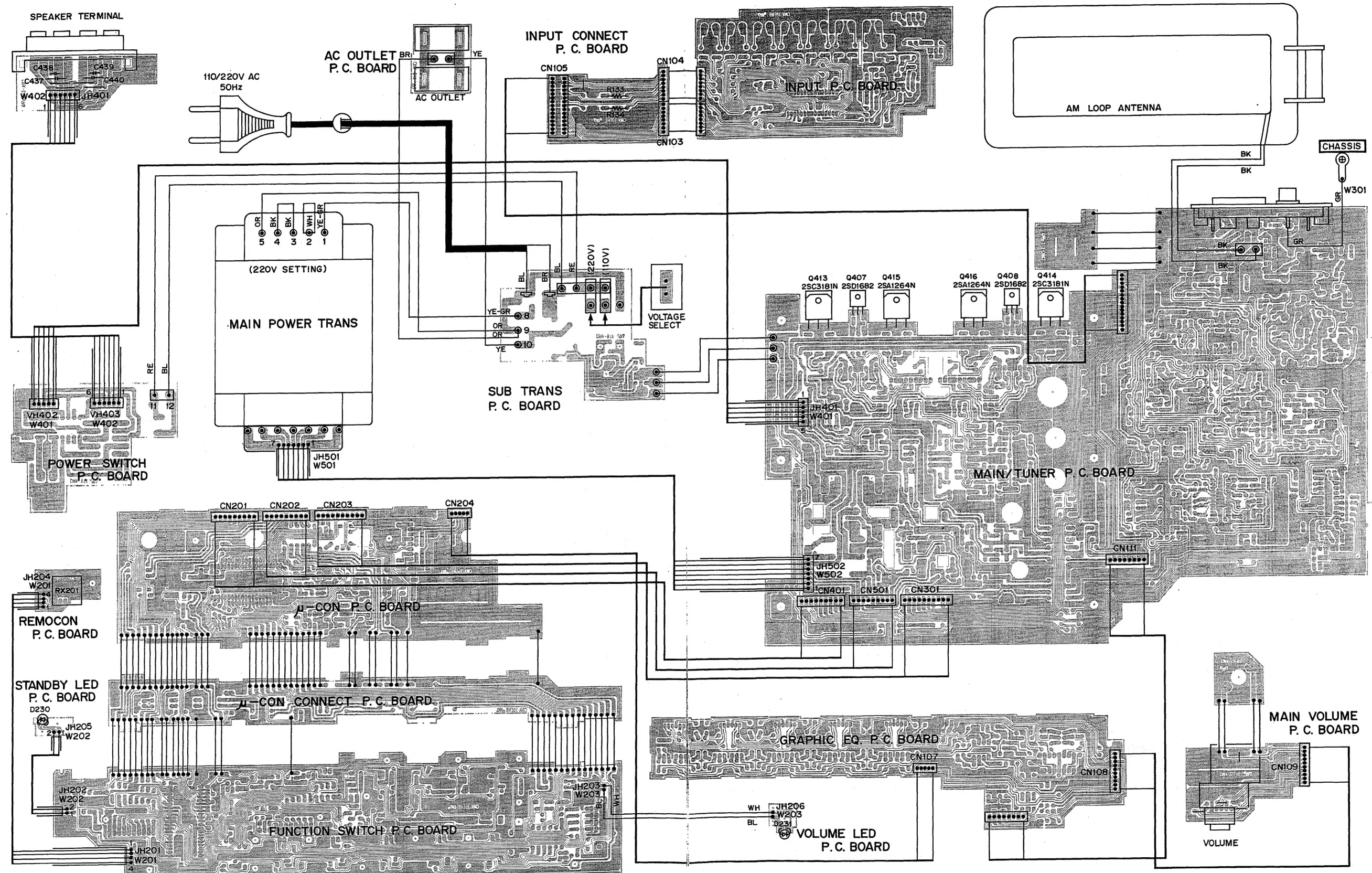


### SCHEMATIC DIAGRAM (2)



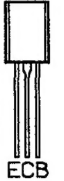
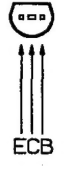


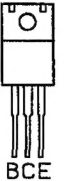

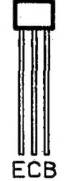



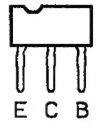
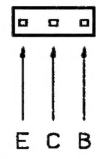


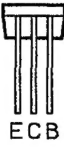
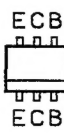

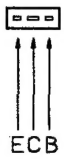








# POINT TO POINT WIRING DIAGRAM

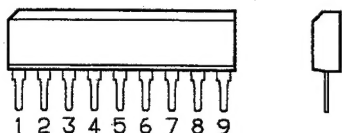


## IC & TRANSISTOR LEAD IDENTIFICATION

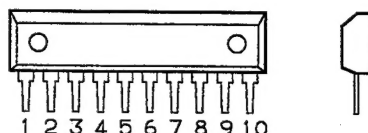
TRANSISTOR	FRONT VIEW	BOTTOM VIEW	TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA984 2SC2274 2SC3792			2SB560		
2SA1209 2SA1249 2SC2911 2SC3117			2SD1913		
2SA1511 2SA1522			2SA1264 2SC3181		
2SC2021			2SA1345 2SA1346 2SA1348 2SA1590 2SA608 2SB808 2SC3399 2SC3400 2SC3402 2SC3860 2SC3899 2SC4048 2SC536 2SD1012		
2SC3066			2SD1682		
2SK246 2SK583			DTA124 DTC123 DTC144 2SC4038		
<b>TERMINAL NAME</b>					
B → BASE C → COLLECTOR E → EMITTER			S → SOURCE G → GATE D → DRAIN		

## IC & TRANSISTOR LEAD IDENTIFICATION (Continued)

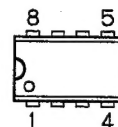
**LA2500 FRONT/SIDE VIEWS**



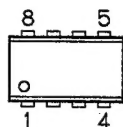
**LB1641 FRONT/SIDE VIEWS**



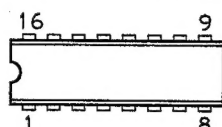
**UPC4570C TOP VIEW**



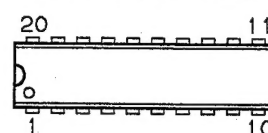
**RC4558 TOP VIEW**



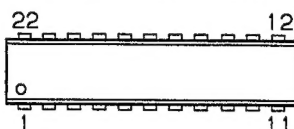
**TC9215P TOP VIEW**



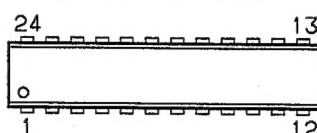
**LM7000 TOP VIEW**



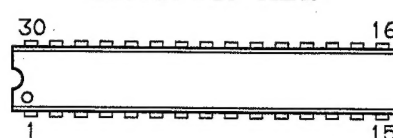
**LA3401 TOP VIEW**



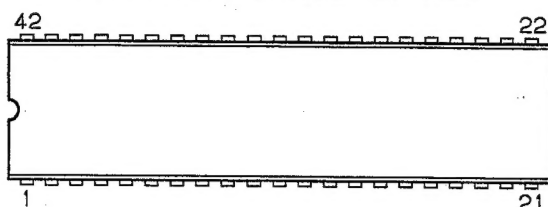
**LA1266 TOP VIEW**



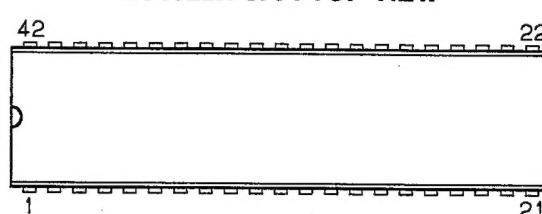
**LC7821 TOP VIEW**



**TMP47C441AN-1669Z TOP VIEW**



**LC6522H-3794 TOP VIEW**



**NJM78M12FA TOP/SIDE VIEWS**

**NJM78M18FA TOP/SIDE VIEWS**

**NJM79M18FA TOP/SIDE VIEWS**

